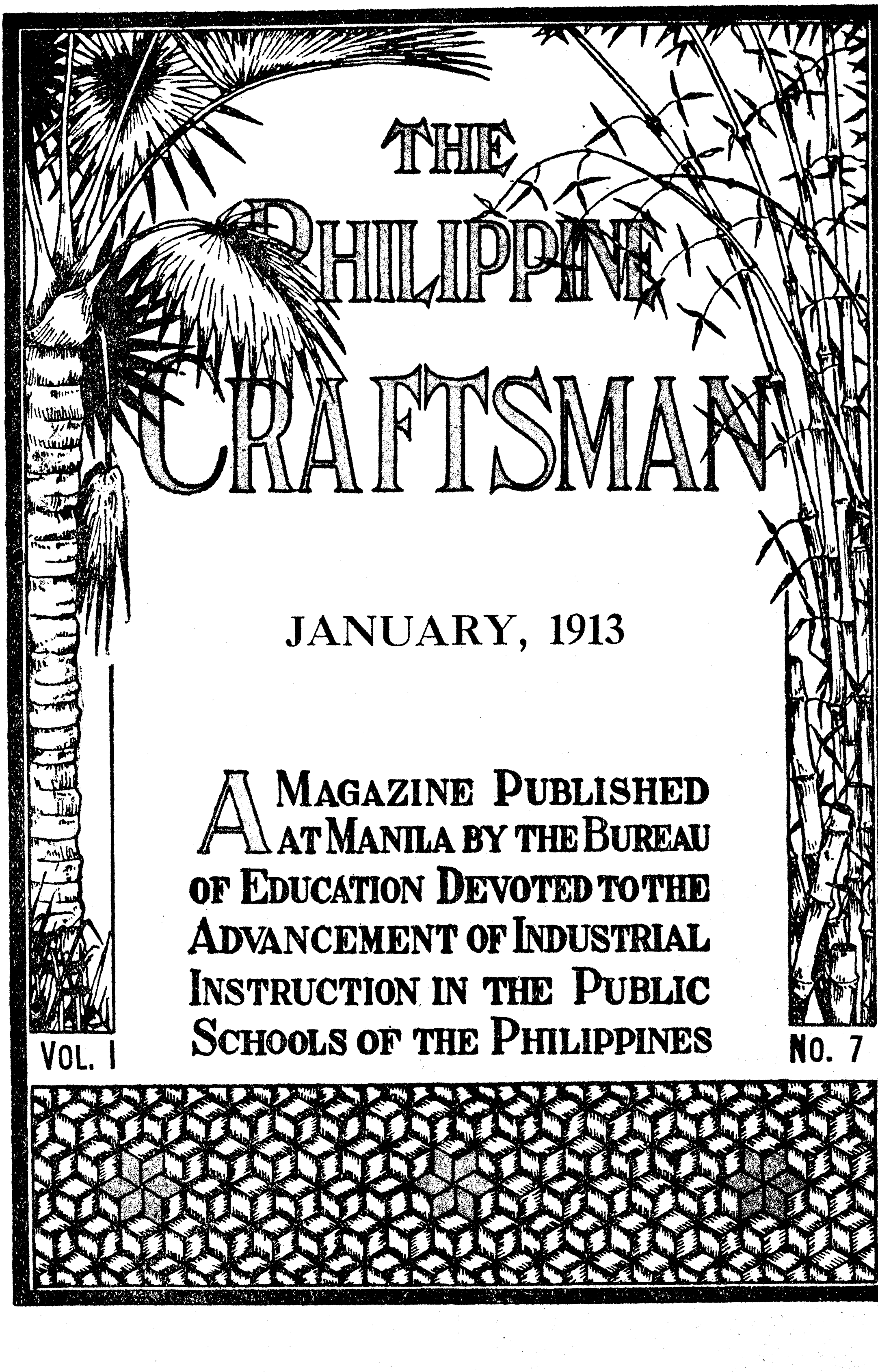

THE PHILIPPINE CRAFTSMAN

JANUARY, 1913

A MAGAZINE PUBLISHED AT MANILA BY THE BUREAU OF EDUCATION DEVOTED TO THE ADVANCEMENT OF INDUSTRIAL INSTRUCTION IN THE PUBLIC SCHOOLS OF THE PHILIPPINES

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The Philippine Craftsman

VOL. I MANILA, JANUARY, 1913 No. 7

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A NATION CAN RISE NO HIGHER THAN THE IDEALS OF ITS CITIZENS, AND AS THE MAJORITY OF OUR CITIZENS MUST BE PRODUCERS, IT IS THE NATION'S DUTY TO EDUCATE AND TRAIN HER PEOPLE FOR EFFICIENT PRODUCTION. — RUFUS J. NELSON.

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The Philippine Craftsman

VOL. 1 JANUARY, 1913. No. 7

PHILIPPINE CLAY WORK.

CLIFFORD H. CROWE, Instructor in Ceramics, Philippine School of Arts and Trades.

THE object of this article is to state briefly what clay work has been done in the Philippine Islands, what is being done, and what may reasonably be expected in the future. Much crude pottery is made throughout the Islands. The output in 1909, consisting principally of pots for holding water and for cooking food, was estimated at ₱400,000.[1] These are made in a most primitive manner. The clay is not refined, no potter's wheels nor molds are used, no glaze is applied, and no kilns are built. The manufacture of pottery is principally a household industry and is confined to localities where clay is found or where there are facilities for its transportation. Al-

Photograph by Bureau of Science, Manila, P. I.

Plate I. An Igorot woman of the Mountain Province beginning a pot.

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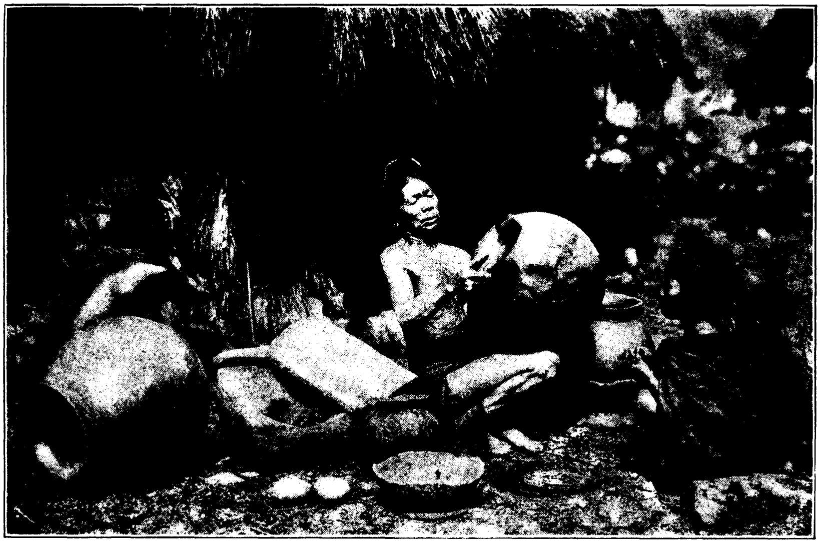
[1] Philippine Pottery, by George I. Adams and Wallace E. Pratt. Philippine Journal of Science (1910), Vol. V, No. 2, p. 143, Manila, P. I.

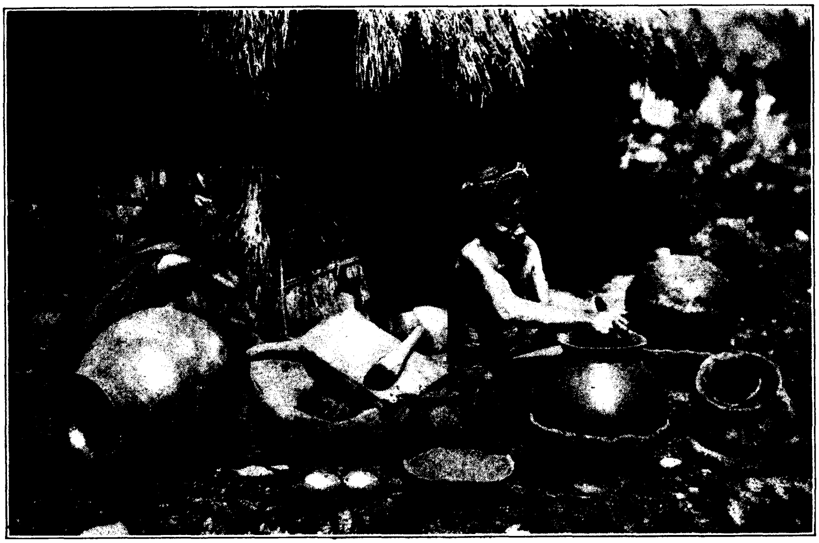
most every province has some town or barrio noted for its production of pottery.

A common sedimentary clay is used. This is sometimes so plastic that an addition of as much as one-third sand is necessary



Photograph by Bureau of Science, Manila, P. I.

Plate II. Shaping the pot.



Photograph by Bureau of Science, Manila, P. I.

Plate III. Making the rim.

to prevent cracking. Stones and sticks are removed by hand and then the clay is thoroughly mixed by tramping. A lump of clay is placed on a small board or block that can revolve more or less easily on another beneath it. The clay is made into a

Photograph by Bureau of Science, Manila, P. I.

Plate IV. Giving the pot a smooth finish.

Photograph by Bureau of Science, Manila, P. I.

Plate V. Transporting pottery in the Mountain Province.

crude cup-shaped article and then set away till it becomes of a tough leathery consistency. This is then given a second shaping by holding a smooth stone inside and beating the pot with a wooden paddle. Sometimes to make the article more smooth the ware is painted with a fine-grained red slip (probably ochre) and then polished with a piece of a large shell. When the pots are dry they are piled on a layer of bamboo sticks and rice straw, covered with more of the same fuel, and burned in the open. The firing is completed in a few minutes. The women and the children make the pots, while the men carry them to market on their backs, on horses, or in bancas.

An interesting local industry has been established at Piddig, Ilocos Norte, where small clay pipes are used, mainly as cigar or cigarette holders.[2] These pipes are molded from the clay by the use of the hands and two small pointed pieces of bamboo. These pieces of bamboo have one end pointed for making the hole in the stem and cutting the design. The other end is flatter and is used for forming the bowl both inside and out. To moisten the clay as it becomes dry it is necessary for the makers to use the grease and sweat from their noses. They believe that the quality of the pipe is improved thereby.

Photograph by Bureau of Science, Manila, P. I.

Plate VI. Using jars to carry water, Mountain Province.

The pipes are burned in rice straw. After they are burned

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[2] The information on Piddig pipes was furnished by E. J. Murphy, Division Superintendent of Ilocos Norte.

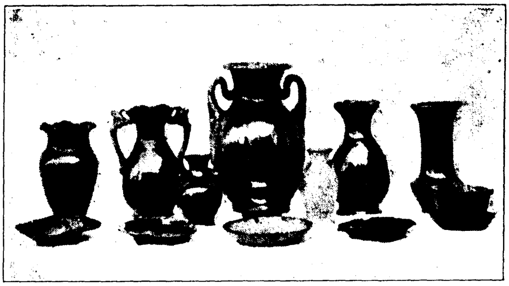

Plate VII. Vases and trays designed and modeled by first-year students.

and while still hot they are covered with a preparation of rice chaff and carabao dung. The heat of the pipes sets the mixture on fire, but as the combustion is imperfect, a deposit of carbon forms on the pipes and turns them black, giving them a glazed effect. The people know nothing, however, of real glazing.

The decoration always consists of two designs. One is called "Sinicirilo," or face of man, and the other is "Siguemguem," or hand of man. Large quantities of these pipes are used by Ilocanos. The price runs from three to ten centavos each.

There are a few factories in the Philippines and these use kilns. The Spanish introduced the dome-shaped beehive kiln, which was used to fire Spanish roofing tile so much in vogue before galvanized-iron roofing was introduced. This type of kiln is now used for firing brick. The usual type of a pottery kiln is a long semicylindrical structure introduced by the Chinese, in which are produced the large tinajas and sugar pelones. The kilns are fired with wood. The temperature attained is low, but the clay is very fusible and a semivitrified product often results. A Japanese kiln has lately been introduced. This consists of two ovens—the first for glazing and the second for firing biscuit. Four of these are now being operated—one in San Pedro Tunasan, Laguna, owned by a Japanese; one in Pagsanjan, Laguna, built by two boys who studied a year in the pottery school while it was in Laguna; another in the primary school at Lumbang, Laguna; and a fourth in the ceramic department of the Philippine School of Arts and Trades. A fifth is being built for a pottery school to be organized in Libmanan, Camarines.

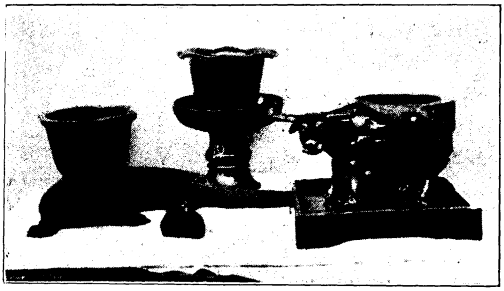

Plate VIII. Articles representing the products of modeling, pressing, and throwing.

Plate IX. Sinicirilo pipe made in Piddig, Ilocos Norte.

About 700 years ago clay work in Japan was in approximately the same stage of development as is the industry in the Philippines to-day. The Japanese obtained their knowledge from China and proceeded to develop their industry. To-day thousands are earning their living by working in factories. Pottery is also conducted as a household industry. Whole cities are devoted to the manufacture of some clay product and one sees father, mother, and children engaged in modeling, firing, glazing, and decorating. Japan is well known for its excellence in porcelain and faïence. In contrast, in the Philippines one sees crude articles made in a desultory and primitive way. With the same efforts intelligently directed, more and better articles could be produced, resulting in greater earnings and a higher development of clayworking.

The city of Seto, Japan, has a population of about 30,000. It is a center for porcelain manufacture and was the first place in Japan in which a glaze was applied to a burned clay. A "fiesta" is held every year in honor of Kato, the man who introduced the art of glazing. The kaolin, feldspar, and quartz deposits are near and there are plants for refining these. There are about one hundred kilns, each containing from three to seventeen ovens. One family may own from one-fourth of an oven to five or six ovens and produce enough every month in the home or factories to fill these ovens. The expense of firing is divided according to the amount of space occupied by each charge. Sometimes other families buy the glazed dishes, toys, etc., decorate them with color (china painting), and fire them in muffle kilns in their back yards. An old man with a doll in one hand and two brushes in the other will dash on the black for hair and eyebrows, red for cheeks and lips, and pass the doll on to his granddaughter, who will apply the other colors. Large factories often order great amounts of the unglazed ware and ship them to be glazed in their own kilns. Thus in Seto we see a city devoted entirely to clay work, with its pottery school, factories for refining materials and for manufacturing finished articles, household manufacture, and the allied work of packing and transportation.

Plate X. Siguemguem or hand-design pipe from Piddig, Ilocos Norte.

Plate XI. Piddig pipe of fern design.

This is greatly in contrast to the Philippine pottery industry, but it is possible to develop a similar stage of the industry in this country.

Throughout the Philippines there are found deposits of common clay. Much of this can be used for brick, hollow block, fire proofing, roofing tiles, vitrified brick, etc. There are deposits of fire clay and kaolin (China clay). In Paracale and in Baguio there is found the pure quartz necessary for glazes and porcelains. In Ilocos Norte there is a granulite dyke[3] which compares favorably with the Cornish stone of England. This Cornish stone or pegmatite rock is much used in glaze and porcelain composition. Thus we can find materials for terra cotta, faïence, fire-clay products, stoneware, and porcelain. As the geological investigation of the Philippines continues there will undoubtedly be discovered many other deposits of ceramic materials.

The Bureau of Education has recognized the opportunities for advancement in clay work, and in accordance with its industrial policy organized a pottery school in 1910. This school was started in Laguna Province but was later moved to Manila and became the ceramic department of the Philippine School of Arts and Trades.

The students of the woodworking course constructed the building for this department and the following equipment was made in the school: One blunger of 40 gallons capacity, a settling tank of 120 barrels capacity, one kiln 12 by 24 feet (containing two ovens), a test kiln, a frit kiln, eleven potter's wheels, kneading table, modeling table, brickmaker's table, drying racks, and a filing case for clay samples and tests. The equipment includes the following power machines: A cup machine, a saucer and plate machine, a lathe, a ball grinder, a glaze mill, and a polisher. This equipment accommodates about sixty pupils, and with it terra cotta, faïence, stoneware, porcelain, and all other classes of clay products can be made.

Plate XII. Another type of Piddig pipe.

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[3] Asbestos and Manganese Deposits of Ilocos Norte with Notes on the Geology of the Region. By W. D. Smith. The Philippine Journal of Science, Vol. II, Sec. A, June 2, 1907, Manila.

Plate XIII. Throwing a tinaja on a native wheel.

The ceramic department aims to train boys so that they will be able to equip and operate a factory. In the first year of the course the students construct the kilns and make common brick, fire brick, decorated tiles, and common glazed ware of various colors and designs.

Sixteen provinces have submitted samples of clay and on them one hundred tests have been made. Fifteen samples of grayish and white clays, commonly called "yeso," have been received. Of these eight burned a white color, six gray, one red, and two buff. White clays from Los Baños, Laguna, from Nasugbu, Batangas, and from Santa Cruz, Zambales, have been received in bulk and have been used separately, mixed together, and mixed with common clay, in each case with good results. Further experiments with the white burning clays will be made for stoneware and porcelain.

Twenty-nine clays and mixtures have been tested for vitrified brick. Of these, three warped slightly, five cracked, one swelled, fifteen showed too short a range between vitrification and viscosity, and five, with a slight variation of mixture, would apparently make a good serviceable brick.

The most successful experiments were those on refractory ware. Fire bricks, fire-clay tiles, and posts have been made and used in the kilns and have in every way served as well as the imported article.

Plate XIV. Finishing the tinaja.

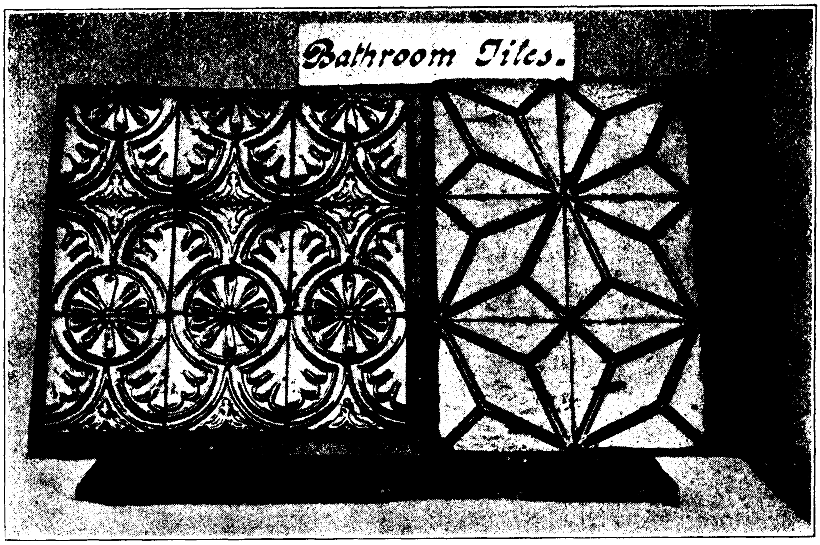

Plate XV. Bathroom tiles made by first-year students at the Philippine School of Arts and Trades.

Plate XVI. Terra-cotta decorative tile, first-year work.

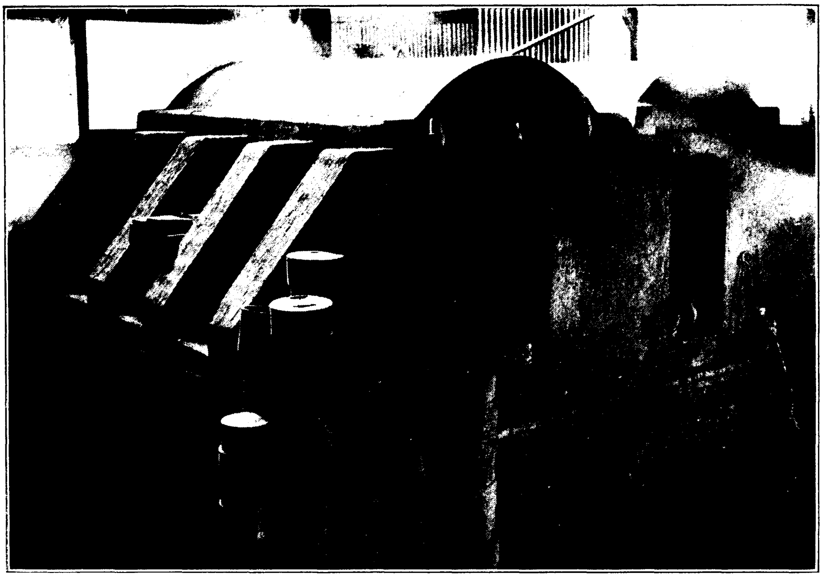

Plate XVII. Kiln built by students of the department of ceramics, Philippine School of Arts and Trades.

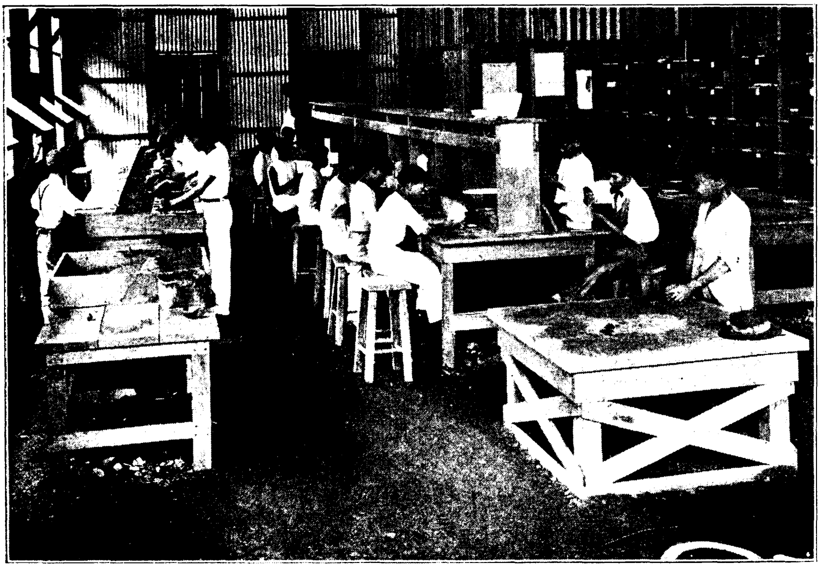

Plate XVIII. Class in ceramics at work in the Philippine School of Arts and Trades.

Practical tests are made to show shrinkage, color, hardness, warping, cracking, etc., from which the usefulness of a clay can be determined. Below are some results of these experiments.

TABLE OF PRACTICAL TESTS OF CLAYS.

Clays.	Shrinkage.		Color.		Cone.	Remarks.
	Air.	Fire.	Air.	Fire.		
	Per ct.	*Per ct.*				
Salsona, Ilocos Norte	11	1	White	White	04	
Santa Cruz, Zambales	5	3	White	White	04	
Nasugbu, Batangas	3	1	White	Grayish	6	
Los Baños, Laguna	6	8	White	White	6	
$\frac{2}{3}$ Los Baños, Laguna $\frac{1}{3}$ San Pedro Macati	10	10	Gray	Dark red	6	Well vitrified and kept their shape.
Liloan, Cebu	8	3	Brown	Dark red	6	
$\frac{1}{3}$ Los Baños, Laguna $\frac{2}{3}$ Zambales	4	3	White	Gray	6	Very refractory. Harder than steel. Good faïence bodies.
$\frac{2}{3}$ Zambales $\frac{1}{3}$ Batangas	3	4	White	Light cream	1	Harder than steel. Vitrified. Good for stoneware and porcelain.
$\frac{2}{3}$ Zambales $\frac{1}{3}$ Silica	7	3	White	Gray	6	

Statistics for 1911 show that in 460 cities of the United States there were laid 30,000,000 square yards of paving. Of this 21½ per cent was vitrified paving brick and an estimate for 1912 shows this to have increased to 27½ per cent. The vitrified brick highway is smooth but not slippery, economical in maintenance, and sanitary. Judging by the unsatisfactory paving material used in Manila, it would seem that a brick plant would be a paying proposition.

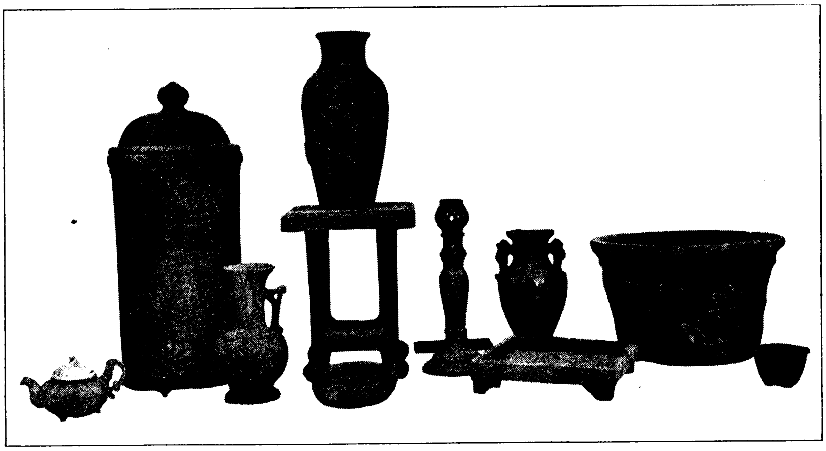

Plate XIX. Terra-cotta work of second-year students at the Philippine School of Arts and Trades.

The city of Manila uses a great quantity of vitrified sewer pipe. Other cities will need this as water and sewer systems are installed. Vitrified brick is also needed in connection with sewer construction. There is a ready market for these products. The material used for a vitrified clay product is shale, impure fire clay, or a common clay. All of these are found in the Philippines and a vitrified brick and pipe factory could easily be started.

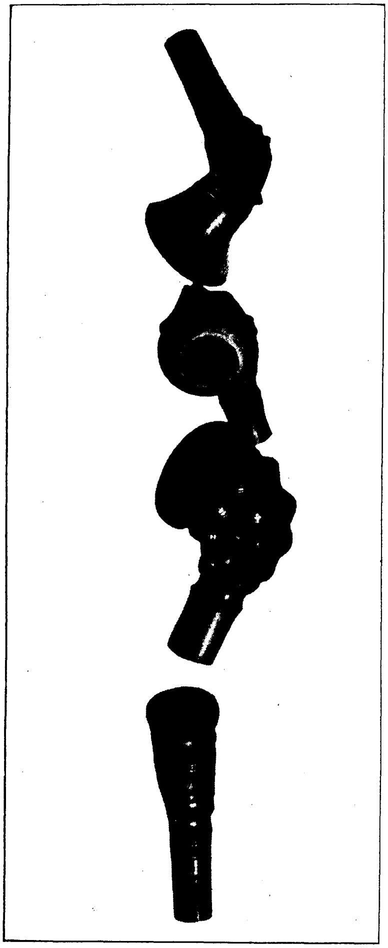

Plate XX. Pipes and stems made by the Igorots.

Every steam boiler installation of any consequence has the fire box lined with fire brick, and wherever sugar is made, fire brick is needed. Crucibles and muffles are used. Thus there is a market for refractory ware which could be made here. There is a growing demand for glazed flowerpots, vases, and other decorated clay ware for home and garden adornment. The demand is also growing for table dishes and for crockery for storing and preserving foods. In Europe much terra cotta and glazed tile are used for the decoration of concrete buildings. The United States is beginning to use more and more of these decorations. The use of a common clay and a simple method of manufacture would enable tile to be made here at low price with considerable profit. Floor tile, bathroom tile, sanitary ware, and roofing tile can be made here more cheaply than it can be imported.

The annual reports of the Insular Collector of Customs for fiscal years ending June 30, 1909, 1910, and 1911 show the following importation of clays and clay products: 1909, ₱289,944; 1910, ₱330,826; 1911, ₱442,534. These sums show the invoice price of the articles, to which must be added wharfage duties and the merchant's profit to represent Philippine values. The greatest part of the imports is earthenware and stoneware which are made of a crude clay and do not require much skill in the manufacture.

Plate XXI. Faïence work of second-year students at the Philippine School of Arts and Trades.

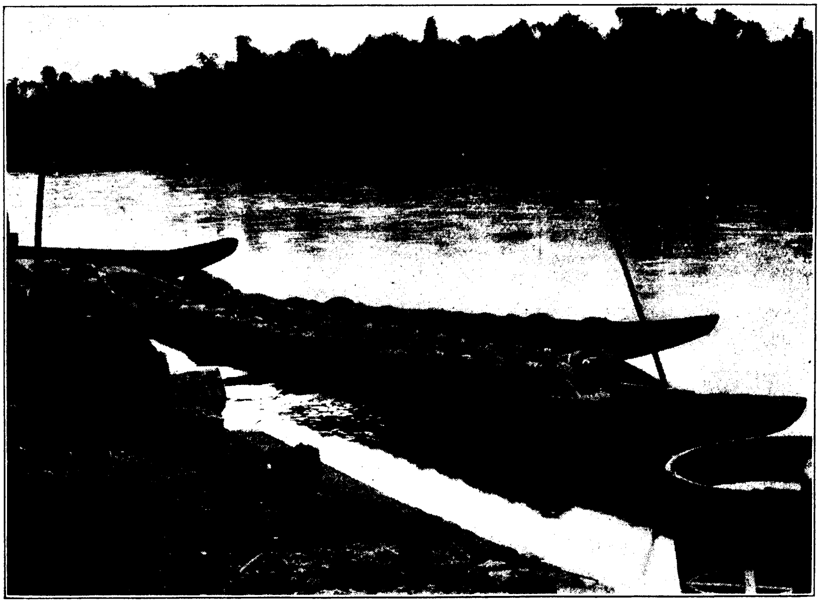

Plate XXII. Pottery transportation on the Pasig River.

It is evident that all kinds of clay products have a market here and that there are materials here for all classes of clay work. The natural conclusion is that effort should be made to supply the demand from the material at hand. But people must first be interested and instructed in this line of work and then taught how to make a living at it. The stable industries of a country usually grow from a humble beginning. A large factory could be successful if it were organized by people having practical knowledge of the industry, of the resources of the country, and of the customs of the people. However, the ceramic department of the Philippine School of Arts and Trades aims to instruct students so that they will be able to organize and manage small factories for themselves. If a boy goes to his home and makes a success, other people will soon learn clay refining, glazing, firing, etc., and an industry will have been started.

In the following bibliography are listed the principal publications relative to Philippine pottery.

The Occurrence, Composition, and Radioactivity of Clays from Luzon. By Alvin J. Cox. Philippine Journal of Science (1907) Vol. II, A, p. 413, Manila, P. I.
Laguna Clays, Ibid., 1908, Vol. III, A, p. 377.
Philippine Pottery. By Geo. I. Adams and Wallace E. Pratt. Philippine Journal of Science, 1910, Vol. VIII, No. 3.
Elements of Ceramics (Pottery Making). Philippine Education (1911), Vol. VIII, No. 3, Manila, P. I.
Philippine Clay Work. By C. H. Crowe. Mineral Resources of the Philippines, Division of Geology and Mines (1912), Manila, P. I.
Philippine Pottery. By C. H. Crowe. Transactions of the American Ceramic Society, Vol. XIV, 1912, Columbus, Ohio.

What is the money value of an education? The average reduced to individual cases, would be something like this: Two boys, age 14, are both interested in mechanics. One goes into the shops, the other into a technical school. The boy in the shops starts at $4 a week, and by the time he is 18 he is getting $7. At that age the other boy is leaving school and starting work at $10 a week. At 20 the shop-trained young fellow is getting $9.50 and the technical graduate $15; at 22 the former's weekly wage is $11.50 and the latter's $20; and by the time they are both 25 the shopworker finds $12.75 in his pay envelope while the technically trained man draws a salary of $31. These figures are based on a study of 2,000 actual workers made by the Massachusetts Commission for Industrial and Technical Education.

ABACA.[1]

By JOHN F. MINIER. Department of Industrial Information, Bureau of Education.

THE ROPE AND TWINE INDUSTRY, WITH A TENTATIVE OUTLINE OF OTHER ABACA INDUSTRIES.

Many fibers are used for rope by the agricultural communities of the Philippines. Rural people are never, in fact, at loss to find bark, twigs, or grass that may be extemporized into a fairly strong cordage quite suitable for tying bundles, repairing carabao yokes, or even rigging sail boats. Many such plants are often utilized in the systematic preparation of ropes offered for sale at the barrio or municipal shops. Of the numerous grasses, sedges, and bast fibers employed in making rope, the most important are rattan, coconut (coir) fiber, malabago, cabonegro and balangot. However, more rope is made from abaca than from all these other fibers combined.

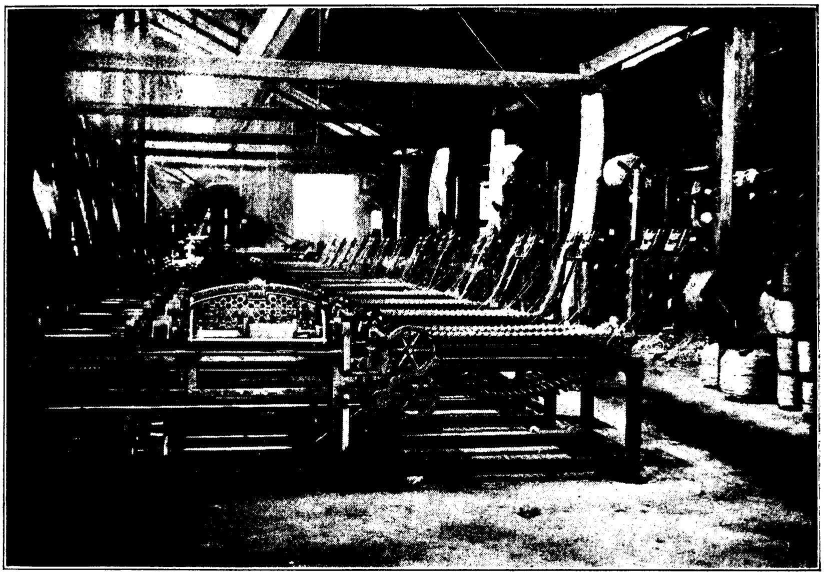

Plate I. Modern rope-making machinery, Manila.

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[1] This is the third paper of the series of articles on the subject of Abaca which was begun in the August CRAFTSMAN. The series will continue through Volumes I and II.

Most of the abaca exported from the Philippine Islands each year goes to the United States and Great Britain. The United States takes all the best grades, while England takes the inferior grades. In 1911, 165,649,626 kilos, valued at ₱32,282,680, were exported from the Philippines. During the next fiscal year, ending June 30, 1912, 154,046,928 kilos, valued at ₱32,577,120, and representing 32 per cent of the entire exports of the Philippines, have been shipped to foreign countries. Of this amount 69,573,526 kilos were exported to the United States, 66,137,911 kilos to the United Kingdom, and 18,335,491 kilos to other countries. Nearly all of the hemp exported is used mainly for making rope, cordage, and twine. However, a small amount of the waste in rope factories is used in making paper. Almost the entire output of this fiber has been exported to the different countries as follows:

Countries. [a]	Kilos.	Value.
United States	69,573,526	₱15,502,978
United Kingdom	66,137,911	12,677,346
Austria-Hungary	154,330	30,978
Belgium	1,581,844	367,910
France	586,359	115,442
Germany	1,024,291	204,672
Italy	664,155	120,796
Netherlands	1,338,194	269,000
Spain	184,147	34,710
Canada	480,700	113,680
China	63	30
British East Indies	1,629,874	308,934
Hongkong	3,023,552	579,334
Japan	4,636,287	1,668,592
Australasia	3,031,695	574,628
Total	154,046,928	32,567,020

[a] See page 166 of the Annual Report of the Insular Collector of Customs for 1912.

It will be noted that during the past year the export of abaca is somewhat less than that of the previous year. However, at the same time the value of the product exported in 1912 is greater than that which was exported during the previous fiscal year. This is probably due to the advance in price of the fiber and a shortage of it in a number of abaca-producing localities that have been visited by typhoons. The increase in the price of this fiber is due primarily to the fact generally known among the American and European importers that there has been a tendency to decrease the acreage in recent years in the Philippines, owing to the previous low prices. The probable production during the next twelve months seems likely to be further decreased as a result of the extreme drought and the severe typhoons that have passed over the abaca-producing regions.

The manufacture of rope from abaca is one of the important industries carried on in the city of Manila. Until recent years all rope produced in the Philippines was made by hand. Not many years ago a large rope factory with all modern machinery was established in Manila and has been turning out rope in large quantities. Abaca is the chief fiber used in this factory. Several different sizes ranging from small ropes 0.6 centimeters in circumference to the large cables 30 centimeters in circumference are turned out at this factory, and most of this rope is used by the shipping world.

The process of manufacturing this rope is very complicated and requires expensive machinery. The fibers are first run through a mangler to draw them out, after which they are passed over the machines as illustrated in Plate I and then wound on large spools. These spools are placed on racks and the ends of the cords inserted into a machine that twists and forms them into a rope. If a rope of greater size is desired the small ones are passed through one machine after another until the desired size has been obtained. In Plate II there is illustrated one of the biggest pieces of rope turned out by the Manila factory. This piece of rope is 30 centimeters in circumference, weighs nearly 2,000 kilograms and is valued at about ₱1,800.

Manila hemp (abaca fiber) as a cordage has no superior, its chief value for ship's rope being its relative lightness and strength. The strength of Manila hemp compared with that of English hemp is indicated by the following figures: A Manila rope 8 centimeters in circumference and 3.64 meters long stood a strain of 2,122 kilograms before giving way. The English rope of the same size broke with 1,765 kilograms. In a second test with a rope 4.5 centimeters in circumference, the Manila broke with 677 kilograms and the English with 508 kilograms.[1]

Other kinds of ropes are made from the true hemp fibers, which were formerly the chief ones used for cordage. The best of these are produced in Italy; however, Russia produces the most. These ropes are manufactured principally in Europe and the United States. Aside from Manila hemp, the Agave fibers rank second and Mauritius hemp and New Zealand hemp next. Coir ropes are made from coconut-husk fiber and are used on fishing boats and in making nets. Jute is made into rope

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[1] H. T. Edwards, Fiber Expert, Farmers' Bulletin No. 12, page 9.

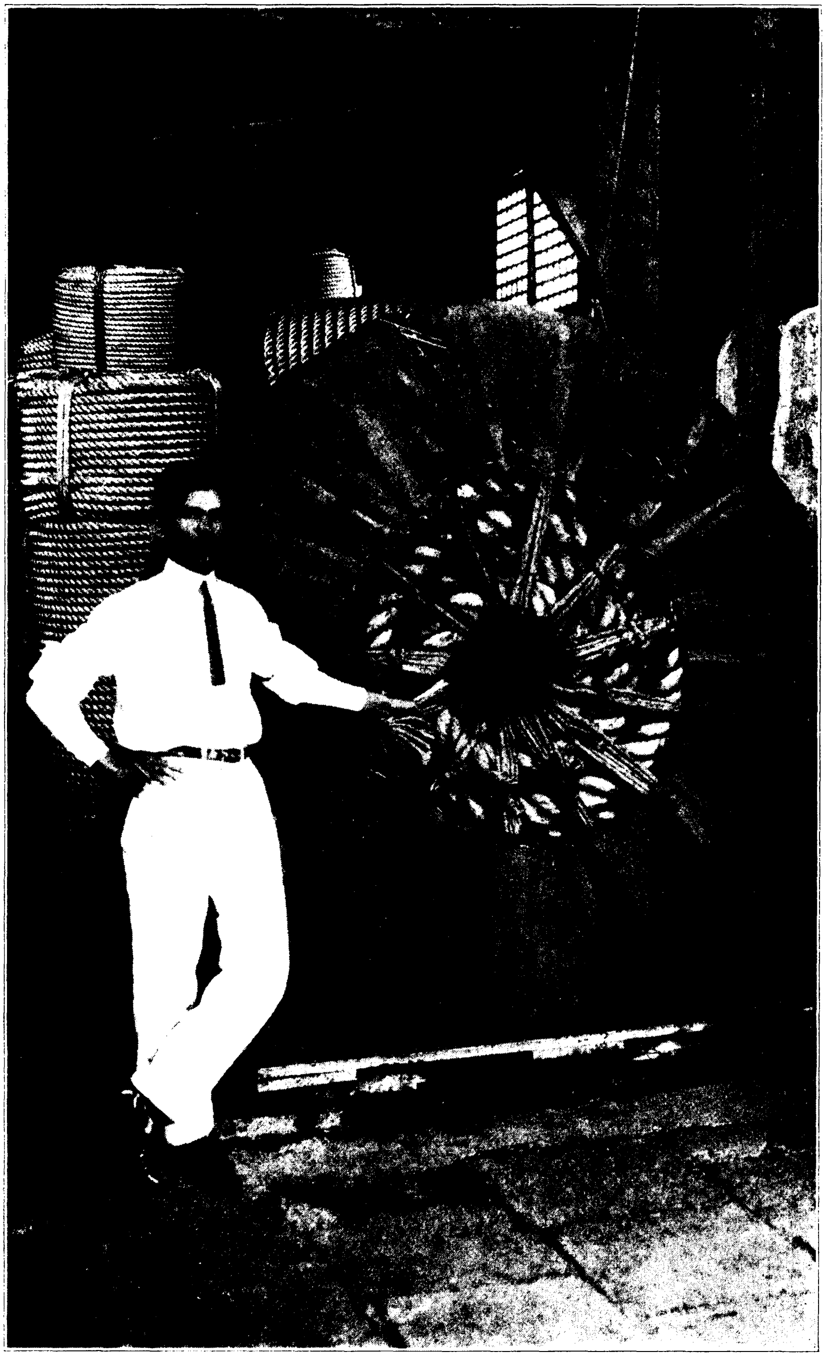

Plate II. A bale of tow-line made in Manila.

and twine of the lower grades, but has no great strength and soon rots after it has been in the water for a short time. Ramé cordage is probably the next best. It is strong and to a great extent resists action of water.[1]

In almost all localities where abaca grows, enough rope to supply the local demands is made by hand. In a few places a small amount is exported but is of very little commercial importance outside of Manila. The greatest amount of hand-made rope comes from Malabon, Rizal. At this place the work is carried on to quite a large extent, and considerable rope is exported to the other provinces. The method of manufacture is the one that is common throughout the Philippines. Two or three strands are twisted first. This is done by fastening one end of the strand to a spool or wheel, which is made to revolve rapidly by the jerking motion of the operator, who holds the strand with his left hand and adds the fiber with his right. Usually a third man separates the fiber and hands it to the operator as it is needed. When the strands are of the required length they are twisted together by the use of a primitive rope warp.

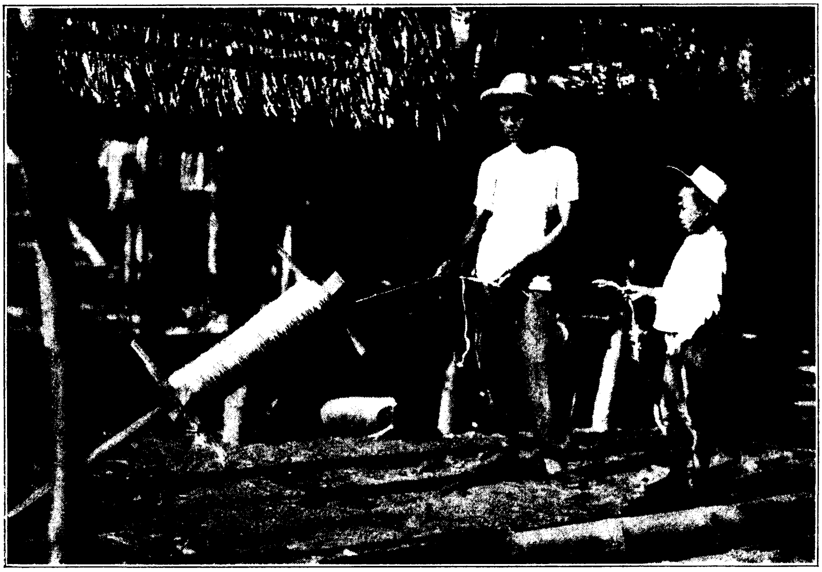

Plate III. Making rope by hand, Malabon.

At Tanauan, Batangas, and a number of its barrios, the rope industry gives employment to about 200 people during six months of the year, and it is estimated that the revenue accruing to the people from this line of work is about ₱6,000 a year. Batangas also furnishes a quantity of small size rope, which is usually sent to Manila in the form of skeins and used in tying up packages.

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[1] Millers's Commercial Geography.

Binder twine is used to tie into bundles nearly ninety million tons of wheat harvested annually in the United States. In addition to the wheat, barley, rye, rice, and flax which are cut by the grain binders, increasing areas of corn are being harvested by corn binders. The quantity of twine required varies widely for low and heavy crops and for different crops, also for different kinds of twine, but as an approximate average it may be estimated at 1 kilo per 40 ares for small grains and 1.5 kilos per 40 ares for corn. More than forty-five million kilos are used annually in the United States. The farmer pays for this more than thirty million pesos. This twine is used but once and in its use is destroyed. Hay rope may be used over and over again before being worn out and after that it may be converted into paper stock, but not so with binder twine. No attempt is made to recover it for any purpose and in one occupation it uses up completely more than ninety million metric tons of a new fiber each year. The demand for binder twine has been a most important factor in the development of hard-fiber production during the thirty-six years since self-binders came in general use for harvesting grain in the United States.

The fiber to be used for binder twine must be strong, stiff, averaging 76 centimeters long, clean, straight, not subject to injury by moisture, mildew, or insects, and must be comparatively inexpensive. These requirements are best fulfilled by the hard fibers—abaca, henequen, sisal, cantula, cabuya, phormiyum, and to a less extent by the soft fibers—flax, hemp, and jute. All of the hard fibers used in the manufacture of binder twine are imported into the United States. The principal kinds of binder twine quoted in the markets are the following:

1. Pure Manila (393 meters to a kilo), made of a good quality of abaca fiber.
2. Manila (404 meters to a kilo), made of abaca with a mixture of other fibers.
3. Standard Manila (393 meters to a kilo), made of mixed abaca and henequen fiber.
4. Standard (340 meters to a kilo), made of henequen colored to resemble abaca.
5. White sisal (340 to a kilo), made of henequen fiber sometimes with a mixture of other fibers.[1]

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[1] Year-Book, Department of Agriculture, 1911.

Abaca, commonly known as Manila hemp, and henequen, known commercially as sisal, are used for binder twine more than all other fibers combined. Other hard fibers used to a limited extent, chiefly for mixing with abaca or henequen, are phormiyum, Manila maguey, mescal maguey, cabuya, and Mauritius.

The best and the highest grades of binder twine are made from abaca. A description of the production of this fiber was taken up at length in the August issue of the CRAFTSMAN. Twelve different grades of this fiber are quoted on the market, the difference resulting chiefly from the greater or less care in cleaning and preparing the fiber. These grades range in price from about ₱0.25 per kilo for the lowest to about ₱0.44 for the highest. Most of the "pure Manila" binder twine is made of the "midway" or "medium" grade, ranging between the grades known as the spare current and good current.

To a great extent colored abaca is being used both in and outside of the schools throughout the Philippine Islands. In the making of sinamay, pinolpog, and other fabrics, as well as in the manufacture of slippers and handbags, a considerable amount of dyeing is necessary. In a few places the proper dyes are being used and the dyeing is well done. However, in most provinces, especially where sinamay and pinolpog are not manufactured, the teachers know very little about this line of work, and as a result their efforts to dye the fiber have been little more than failures. It is evident that some definite instruction in regard to this important part of industrial work should be sent out. For about two years the Bureau of Education has been in communication with a number of German dye manufacturers for the purposes of obtaining dyes suitable for this fiber. A number of good ones have been secured and are giving satisfactory results. However, investigations along the line of dyes are still being made and will probably continue until the best and most suitable kinds have been secured. An effort has been made to do away with the gaudy fugitive colors frequently used for dyeing this material, and to substitute more permanent, harmonious, and pleasing tones. As soon as sufficient data can be gathered on the subject an article will be written dealing with the different dyes adapted to this material, the methods of using them, the probable cost, and the place from which they may be obtained.

The commercial abaca fiber is contained in the outer portion of the petiole. To get this fiber the pulpy part is stripped away.

However, if it is not stripped it is cut into narrow strips, dried in the sun, and called lupis. If properly prepared it is of a silvery white appearance and very strong. A few years ago this fiber was used as a twine to tie bundles and to make fishing lines and small ropes. It was not until a little over two years ago that it came into use as an industrial material in the public schools. At that time it was used in making small trays. Since then its uses have spread and in the provinces where abaca grows it serves to a great extent as industrial material for pupils of Grades I and II. Even a number of European manufacturers have become interested in this material and have already ordered samples through their Manila offices. Information is being collected on this subject, and in due time an article in regard to it will appear in THE PHILIPPINE CRAFTSMAN.

Since time immemorial the native women in various parts of the Philippines have been weaving beautiful cloths from abaca fiber, the most important being sinamay and pinolpog. Some of these cloths are very fine and delicate and are beautifully dyed. Others are coarse and rough. The making of this cloth requires considerable skill and experience. The fiber is always tied by hand and woven on small hand-power looms, the process of weaving often being long and difficult. The greater part of these cloths is used locally and forms one of the principal dress materials of the Filipino women. However, during recent years an export trade has been built up and is on the increase. During 1911 more than 139,000 square meters of sinamay alone valued at ₱19,000, entered into the foreign exports. In 1912 this was increased to more than 207,000 square meters valued at nearly ₱26,000. The province of Albay exports more than ₱10,000 worth of sinamay annually, aside from a considerable amount of other abaca fibers, and the production is still on the increase. The history of this cloth, the preparation of materials, the process of dyeing and weaving, and the marketing of the finished product will be given consideration among other articles on abaca and its various uses.

A number of the non-Christian tribes, especially the Mandayas and the Bagobos, produce very beautifully dyed abaca cloths containing unique and intricate designs. The method of dyeing, designing, and weaving this cloth is so entirely different from that employed by the weavers elsewhere in the Philippines that the process is interesting and instructive, and should therefore be given to the public. Not a great amount of this cloth ever reaches the general market, as most of it is made for home use. In many instances it requires several months to prepare the fiber and weave it into a finished piece of cloth.

During the past two years coiled baskets have been made from various materials in a number of schools. However, abaca has been the principal fiber used in making coiled baskets, especially the higher priced ones. Each year these baskets are greatly improved, and only time is needed when they will be works of art and demand high prices from the various basket collectors. The Bureau of Education is now working out some excellent models in coiled baskets. At some future date the use of abaca fiber as it is employed in the manufacture of coiled as well as other forms of basketry will be taken up and discussed in considerable detail. A few years ago the Tagal braid industry was confined chiefly to Japan and Europe. Much of the tied abaca was shipped to Japan, made into braids, and then exported to Europe at a considerable profit. Two years ago very little braid of this kind was produced in the Philippines. However, from time to time the number of braiding machines in operation has increased. These machines were first put into

Plate IV. Making a rope warp, Malabon.

operation solely for the purpose of making braids for the European trade. The exportation of this braid still continues, yet to a great extent it is being employed in the manufacture of men's and ladies' hats. A number of workers in Baliuag are being supplied with this braid, and beautiful substantial hats are being turned out by the hat weavers in that locality. Aside from the use of these materials for hats, they are utilized in making lace, baskets, and other minor articles such as are manufactured in the public schools of the Philippines. At a later period this industry will be taken up and more fully discussed.

During recent years abaca slippers in one form or another have been manufactured in the schools of various localities throughout the Philippines. Many different types have been evolved and placed on the market. However, only a few have withstood the test and become marketable products. Every year the slipper work is greatly improved. During the industrial exposition new ideas in this line of work are always to be found and these ideas are usually better than those presented during the previous expositions. In a number of places the abaca slipper has entered the homes of the poor people and to a great extent has supplanted the use of the chinela. To the public schools is due the credit of developing and standardizing this work throughout the Philippines. An article will be prepared on the abaca slipper industry as it has been developed in the schools of the Philippine Islands. This will take up in detail not only the preparation of the material but the steps in their manufacture.

During the past eighteen months this fiber has entered the field as a substitute for a number of imported materials that were formerly used in the schools. Not only has it been used as a substitute but it is also being employed in the making of a number of useful and beautiful articles for which other materials are unsuitable. Many useful and substantial articles such as lace bags, embroidered cushions, and cushion covers are now being made from this material, and it is believed that within a short period of time it will be utilized for many purposes.

In a few localities attempts are being made to manufacture lace from tied abaca fibers and to a certain degree have been successful. However, only time will tell whether or not these laces will meet the approval of the general public.

THE VACATION ASSEMBLY OF THE PHILIPPINE NORMAL SCHOOL.

A. W. CAIN, Acting Superintendent.

The next session of the Normal Assembly for Filipino Teachers will open on the morning of April 14, 1913, in the Normal School Building, Taft Avenue, Manila.

COURSES OF STUDY.

There is no restriction upon the number or kind of courses that may be taken by a teacher, provided the aggregate time for the courses selected does not exceed six recitation periods a day. Each period is fifty minutes in length, and the following courses occupy double periods daily: Nos. 1, 2, 3, 4, and 13 to 59, inclusive. All other courses are for a single period daily, except No. 12, which embraces many subjects and will occupy the entire time of all who take the course.

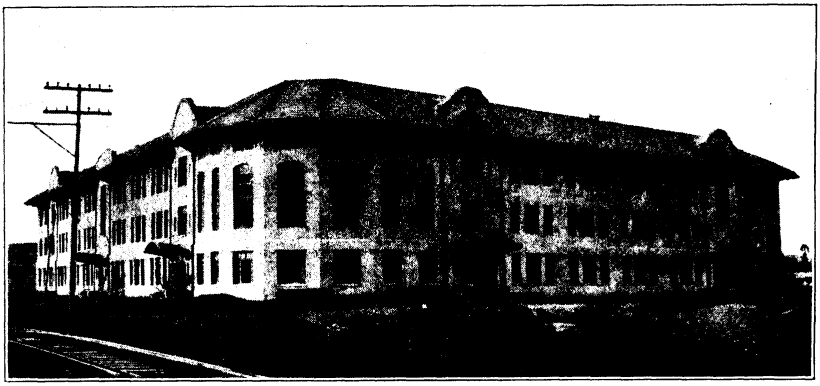


Photo by Bruce Ingersoll.

Plate I. The new Normal School, where the next vacation assembly will be held.

GENERAL COURSES.

These courses are intended for the teachers and supervisors who desire a general review of the subjects treated, for the purpose of increasing their attainments or of coming in touch with the latest and best methods of teaching. They are especially adapted to those who can attend the assembly only occasionally, probably once or twice in several years.

1. *General inspection. A.*—This course is intended for principals and supervising teachers who have charge of the work in native fibers. Those who enroll in the course are not required to actually participate in the making of any article, but are expected to frequent the classes and attend the lectures in elementary hand weaving, basketry, hat weaving, slipper making, mat weaving, matting, and loom weaving, and to obtain from instructors a knowledge of materials and their preparation, the source of materials, standards of work, and methods of organizing and conducting industrial classes. Only teachers who are well endowed with initiative and perseverance should enroll for this course. Credit may be obtained by submitting a complete and exhaustive report covering all points included in this course.

2. *General inspection. B.*—This course is given for only those principals and supervising teachers who have charge of work in lace making, embroidery, Irish crochet, sewing, and cooking. Those who enroll for the course are not required to perform the actual operations in producing the several kinds of work, but are expected to frequent classes and lectures, learn *how* the work is done, acquire a knowledge of standards of work, kinds and sources of materials, and the organization of industrial classes. Only mature teachers of great earnestness of purpose should consider this course. Credit may be obtained in the same manner as for the preceding course.

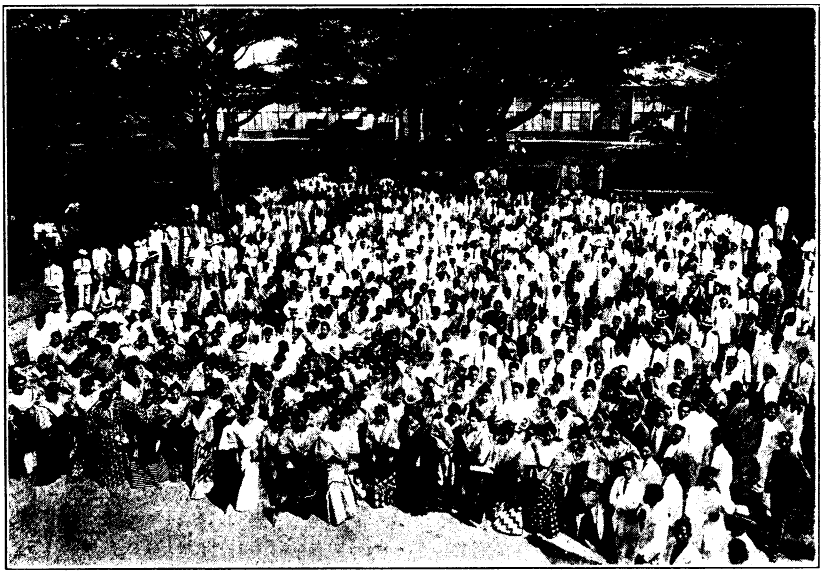


Plate II. A vacation assembly at the Philippine Normal School.

3. *Drawing. A.*—This course offers the teacher careful instruction in the elements of drawing, with a view to fitting him to conduct the drawing work of primary grades. Consideration is given mainly to the following points: The cube, verticals, horizontals, pyramids, slopes, tests of proportion, similar objects, guide lines and lettering, object and shadow,

color names, simple color chart, sketches from simple objects, relation of pictures to objects, the use of pictures in language study, skeleton drawings to represent facts and action. The course will be correlated as far as practicable with the several teaching processes of the primary grades.

4. *Drawing. B.*—This course includes a brief review of elements together with balanced objects, blocking in, initials, monograms; use of ruler, compasses, view finder, crayons, brush, pyramid, and cone; uses of color contrast and harmony; decorating cards, book covers, albums, envelopes, and lanterns; designs for embroidery and weaving. Bulletin No. 32 will be in the hands of the instructor as a teacher's manual. The aim of the course is to increase the efficiency of intermediate teachers of drawing. It is open only to those who have completed course No. 3 or its equivalent.

5. *Music. A.*—Voice culture, ear training, elements of music, rote songs taught and method of teaching them. Primer of vocal music. It is the purpose of this course to prepare any teacher to conduct the music work required of barrio schools.

6. *Music. B.*—More advanced work, as found in the First Book of Vocal Music. Rote singing combined with sight reading. The sharps and flats taught in the signature of each key and rapid sight reading in all the keys. The study of rhythm and time problems. The development of intermediate tones and the representation of these in various keys. Chorus work. This course is planned primarily for teachers who have charge of the music classes in central and intermediate schools. It is open only to those who have taken course No. 5 or its equivalent.

Photo by C. H. Storms.

Plate III. A corridor in the Philippine Normal School.

7. *Language and reading (primary).*—This course is intended for primary teachers of limited attainments. The first four weeks are devoted to language and the remainder of the session to reading. In language, first-year work without a book is emphasized; but the course includes a careful consideration of Reimold's Primary Language, Books I and II, as a basis of language work in grades two, three, and four. The reading consists of actual work based on the adopted texts. Careful attention is given to the assignment of lessons, method of studying the lesson, recitations, supplementary exercises, and the correcting of written work. Teachers should bring their own books.

8. *Numbers and arithmetic.*—Emphasis is placed upon the teaching of numbers in the first year. Objects are used in counting and in the four fundamental operations. The number idea in the concrete, in the abstract, written; the number story, mechanical operations. The work of second,

third, and fourth grades is based on the adopted texts. Teachers should bring their own books.

9. *Hygiene and sanitation.*—Personal hygiene, including cleanliness, clothing, habits of eating, posture in sitting, walking and sleeping. The home: The kitchen, foods bought in the market, home sanitation, disinfectants and their uses. The town: How to keep it clean, infectious diseases and how to prevent them, the mosquito and its extermination, the board of health and its work. This course is based on the Primer of Sanitation, supplemented by recent circulars and bulletins on the subjects discussed. The course is adapted to any teacher, but particularly to those who teach hygiene and sanitation in the fourth grades. Teachers should bring their own books.

10. *Government (primary).*—The local government—officers, their powers and duties, how they obtain their positions, terms of office, compensations; the justice court; the municipal council and its workings; taxes and other sources of revenue, how collected and for what purposes expended; post office, mail service, and the postal savings bank; the local market, plaza, streets, roads, bridges, and public buildings, and how improvements may be effected; protection against fire, disease, and lawlessness. The essential aim is to develop methods of properly presenting the subject to fourth-grade classes. The course will be based on outlines, lectures, and notes.

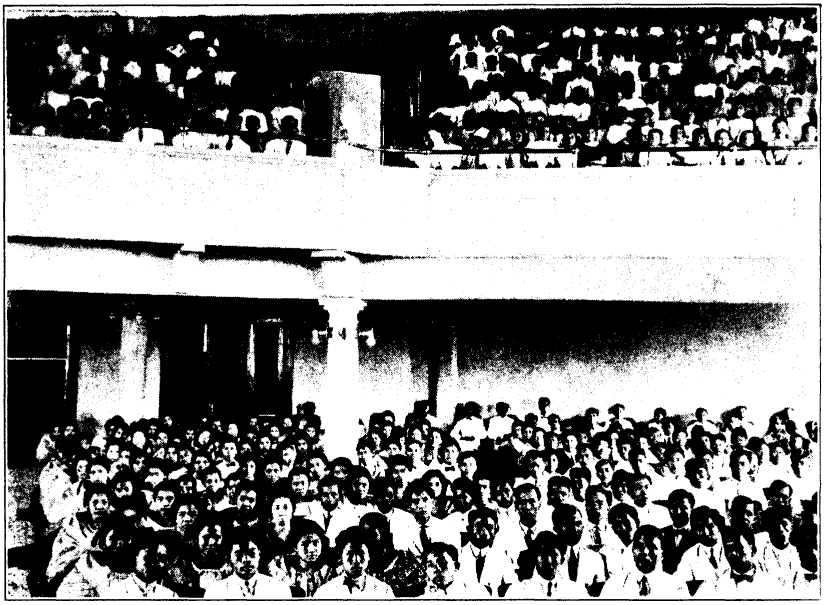


Photo by Bruce Ingersoll.

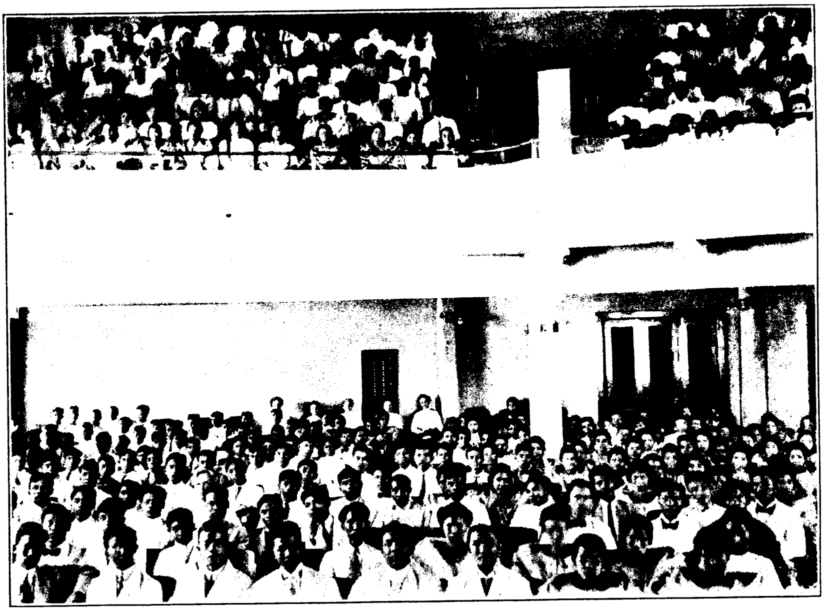
Plate IV. The auditorium of

11. *Phonics.*—The learning of the elementary sounds, drill in making the sounds, sound values of letters and combinations of letters, diacritical marking, syllabication, accent; drill in articulation, pronunciation, and enunciation; instruction and training in the use of the dictionary to deter-

mine pronunciation; methods of teaching phonics. Much of the drill of this course will be based upon words found in the primary text-books, and upon the commonly mispronounced English words of the student-teacher's vocabulary. The Webster system of diacritics will be used in the class, but when requested, the instructor will assist students in interpreting and using the system employed in the Standard dictionary.

SPECIAL GRADED COURSES.

Heretofore, all of the courses given in the vacation assemblies have been rather general in character. That is, they have borne no particular relation to each other, and as a rule have not been confined to any particular part of the subject studied. These courses have served well the purpose for which they were intended; but new needs have arisen which demand progressive courses by which teachers who are accustomed to attend the assembly may increase their general attainments from year to year. At each vacation assembly, the teacher who takes these courses is expected to complete a definite portion of the work, pass to something higher, and not thereafter be required to repeat any work that has already been done. Each course contains one-fourth of one year's work in the subject under consideration. Although the sessions of the assembly last only six weeks, it is believed that the teachers who enter these courses



the Philippine Normal School.

may complete one quarter's work each session, thus advancing a whole year for each four assemblies attended. This belief is based upon the fact that teachers who take the graded courses will undoubtedly do much studying and work at home during the intervals between the vacation assemblies. The courses in the assembly being in part a review, the work which would ordinarily require the student ten weeks may be accomplished within the six weeks' session of the assembly.

Teachers who complete these courses and pass the prescribed examinations will be given the same credit as for courses completed in the regular sessions of the Normal School.

12. *Seventh grade review.*—This embraces all the subjects in the seventh grade of the general course as outlined by the Director of Education. Part of the cooking belonging to the course must be done on Saturdays. Those who enroll for the course should not attempt any other work. Certificates of promotion will be issued to those who successfully complete the prescribed work and pass the required examination. Only those who have already done at least three-fourths of the work of the seventh grade are eligible for enrollment in this course. Applicants should bring their own books.

13. *Elementary hand weaving. A.*—Buri and straws. Samples containing all the exercises for the first and second grades.

14. *Elementary hand weaving. B.*—Two bags and one satchel of fancy design and weave for third grade. The course is open to only those who have completed Elementary hand weaving. A, or its equivalent. This course leads to Mat weaving and Hat weaving.

15. *Elementary hand weaving. C.*—Bamboo and rattan. Sampler containing exercises for first and second grades.

16. *Elementary hand weaving. D.*—Six articles for third grade. This course leads to Basketry, bamboo and rattan furniture making.

17. *Mat weaving. A.*—Weaving one mat with woven-in designs and one mat with embroidered designs.

18. *Mat weaving. B.*—Making a large circular mat or a large Romblon mat, with ornamental designs. Lectures based on articles in THE PHILIPPINE CRAFTSMAN.

19. *Hat weaving. A.*—Making one small buri hat and one large buri hat.

20. *Hat weaving. B.*—Making a large sabutan hat. Applicant must have had Hat weaving. A, or its equivalent.

21. *Hat weaving. C.*—Making a large bamboo or calasiao hat. Applicant must have had Hat weaving. B, or its equivalent.

22. *Hat weaving. D.*—Making a large buntal hat. Applicant must have hat weaving. C, or its equivalent. Lectures from Bulletin No. 33, "Philippine Hats," with all of the courses in hat weaving.

23. *Slipper weaving. A.*—Making two pairs of grass slippers.

24. *Slipper weaving. B.*—Making one pair of abaca slippers, macramé tops and leather soles. Lectures on materials and designs accompany both courses in Slipper weaving.

25. *Abaca weaves.*—Making sampler containing ten different macramé

knots or fancy weaves. Finishing one abaca bag. (Note.—Other abaca work is done in courses 14, 24, 27, and 32.)

Photo by Bruce Ingersoll.

Plate V. A section of the Normal School Library.

26. *Basketry. A.*—One sewing basket and one plain wastebasket.

27. *Basketry. B.*—One market basket, or one rice basket, or one hamper together with one thimble basket.

28. *Basketry. C.*—One fancy bamboo basket, one coiled basket, or lunch basket.

29. *Basketry. D.*—One fluted double basket, or one fancy coiled basket. Three weeks drafting and designing baskets. (Note.—Any other style of basket may be substituted for one of the above, provided it is equally difficult to execute.)

30. *Bamboo and rattan furniture. A.*—Making a table, tea-table size.

31. *Bamboo and rattan furniture. B.*—Making a chair, full size. (Note.—Any other piece of furniture equally difficult to execute may be substituted for one of the above. Pupils will be allowed to do additional work if they have the time.)

32. *Loom weaving. A.*—Learn spooling, warping, sizing, beaming, and practice plain weaving.

33. *Loom weaving. B.*—Harnessing, reading, and weaving of stripes. Applicants must have had Loom weaving. A.

34. *Loom weaving. C.*—Harnessing, reeding and weaving of twills. Applicants must have had Loom weaving. A.

35. *Loom weaving. D.*—Weaving in fancy design, dyeing and stencilling. Applicants must have had Loom weaving. A and B or C. Lectures with each course.

36. *Matting. A.*—This course can be completed in six weeks. It consists of the setting up of a matting loom and weaving plain, twill, and striped matting. Quality and not quantity of work will be the basis of promotion.

37. *Matting. B.*—Lectures on design and materials, practice weaving, speed, construction of loom.

38. *Lace making. A.*—Making sampler of eight simple laces.

39. *Lace making. B.*—Making sampler of eight difficult laces. Applicants must have had Lace making. A.

40. *Lace making. C.*—Making three difficult insertions and one whole-piece design. Applicants must have had Lace making. B.

41. *Lace making. D.*—Making two whole-piece designs of finest weave. Applicants must have had Lace making. B. Lectures from Bulletin No. 34 accompany all of these courses.

42. *Irish crochet. A.*—To make not less than twenty-five motifs, mounted in an album.

43. *Irish crochet. B.*—Finish one hand bag and one collar. Applicants

Photo by Bruce Ingersoll.

Plate VI. A game of girls' volley ball.

must have had Irish crochet. A, or its equivalent. Another piece of work equally difficult to execute may be substituted for one of the above. Pupils of this section are required to produce the last-named article from instructions from a magazine.

44. *Embroidery. A.*—Making one doily on heavy linen. This piece of work will contain all the elementary embroidery stitches.

45. *Embroidery. B.*—Embroidering two handkerchiefs. Applicants must have had Embroidery. A, or its equivalent.

46. *Embroidery. C.*—Embroidering one complete shirtwaist. Applicants must have had Embroidery. A, or its equivalent.

47. *Embroidery. D.*—Exercises in fancy drawn work, shadow work, and designing. Applicants must have had Embroidery. A, or its equivalent. Lectures from Bulletin No. 34.

Photo by Bruce Ingersoll.

Plate VII. The manual training shop in the Philippine Normal School.

48. *Cooking. A.*—A study of equipment, fuel, personal cleanliness in the kitchen, water, and its uses in the body and in cooking, purity, principal methods of cooking, measurements, and dish washing. Classification of foods, cooking rice, corn dishes, and vegetables in native pots, double boiler, and fireless cooker. Study of eggs and milk, cooking rice and squash pudding; setting tables and serving.

49. *Cooking. B.*—Tissue-building foods. The flesh of animals. Meat: Its structure, composition, cooking, different cuts, and food value. Poultry, fish, quick breads.

50. *Cooking. C.*—Beverages. Cookery for the sick, consisting of the following; Egg gruel, custard, some "gulaman" dishes, chicken broth, beef tea, beef juice, beef balls, toasts. Setting tray, care of the sick.

51. *Cooking. D.*—The making of yeast and yeast bread, sandwiches,

salad making, one kind of cookie, plain cake, vanilla ice cream, coconut ice, punch. Menu making. Review work.

52. *Sewing. A.*—Elementary stitches on doll's clothes, five pieces of hand sewing. Lectures.

53. *Sewing. B.*—Domestic science cap, apron, holder, baby's dress, and boy's jumper suit. Hand and machine sewing. Lectures.

54. *Sewing. C.*—Children's clothes, girl's dress and boy's suit. Machine sewing. Lectures.

55. *Sewing. D.*—Garment cutting and fitting: Three garments. Machine sewing. Lectures.

56. *Gardening. A.*—Aim of gardening, Bureau of Education requirements, site, location, soil, fence, planning the garden, assignment of plots, preparation of the ground, soil fertility.

57. *Gardening. B.*—Seeds, planting, seed boxes, transplanting, home gardens, vegetables, corn, legumes, fruits.

58. *Gardening. C.*—Care of plants, cultivation, trellises, plant enemies, remedies.

59. *Gardening. D.*—Ownership and disposition of products, use of vegetables, food values, saving seed, school-ground improvements, various general topics.

(NOTE.—These courses in gardening are based on the forthcoming Bureau of Education Bulletin on School and Home Gardening and consist of practical work in the Normal School garden and the keeping of note books regarding same. Lectures will be given upon the more important phases of gardening.)

60. *English I. A.*—The study of The Man Without a Country and the study of Evangeline.

61. *English I. B.*—The study of Selected Short Poems from American Authors, and the reading of Rebecca of Sunnybrook Farm. This course is open to those teachers only who took English I.–[2] in the last vacation assembly and students who have successfully completed at least three months of the first year work in English.

62. *English I. C.*—The study of the Alhambra. This course is open to only those teachers who took English I.–[1] in the last vacation assembly and students who have successfully completed at least one semester of the first year, secondary, work.

63. *Composition I. A.*—The first one-fourth of the first year work in composition, as outlined by the Director of Education. The course is based on Fee's English Composition.

64. *Composition I. B.*—The second one-fourth of the first year work in composition, as outlined by the Director of Education. This course is based on Fee's English Composition, and is open to those only who have successfully completed at least three months of the first year work in composition.

65. *General History I. A.*—This course is based on Myers's General History to the bottom of page 194.

66. *General History I. B.*—This course embraces the subject of Roman History as treated in Myers's General History, pages 195 to 331. The course is open to only those who can give evidence of having completed the equivalent of General History I. A.

67. *Algebra I. A.*—The first one-fourth of the first year's work in Algebra, as prescribed by the Director of Education. The course is based on the regular text-book for secondary schools.

Photo by C. H. Storms.

Plate VIII. The weaving of matting and cloth in the Philippine Normal School.

Photo by Bruce Ingersoll.

Plate IX. The basketry department in the Philippine Normal School.

68. *Algebra I. B.*—The second one-fourth of the first year work in Algebra, as prescribed by the Director of Education. The course is based on the regular text-book adopted for secondary schools, and is open to only those who have completed Algebra I. A, or its equivalent.

69. *Education I. A.*—The teacher and his training, personality, preparation, and responsibility; the community, patrons, and students. The grounds, house, rooms, furniture, and equipment. Organizing the school, planning, cleaning, and repairing; making the program and beginning work. Assigning lessons, study, recitations, the art of questioning, the use of blackboards, drill. Reviews, examinations, reports, and promotions. School Government, punishments, and incentives. The aim of the course is to assist the teacher in conducting his school on a more pedagogical and business-like plan. Chapters I to VII, inclusive, of Methods for Young Teachers will be used as a guide.

70. *Education I. B.*—The making and use of lesson plans. Theory and principles of teaching language, reading, writing, arithmetic, spelling, and geography in all grades. The application of principles by practice teaching in the primary grades. The work is based on Methods for Young Teachers, Chapters VIII to XIII, inclusive. This course is open to only those who took Education I. A (School Management) at the last vacation assembly.

(NOTE.—In order to be promoted from first year to second year, secondary, the teacher must successfully complete the work and pass the prescribed examinations in English I. A, I. B, I. C, I. D; Composition I. A, I. B, I. C, I. D; General History I. A, I. B, I. C, I. D; Algebra I. A, I. B, I. C, I. D; and in four consecutive industrial courses. Other academic and industrial courses will be provided from year to year as fast as teachers are ready for them.)

APPLICATIONS FOR ADMISSION.

The vacation assembly is conducted for the benefit of the teachers of the public schools, and all such teachers are invited to avail themselves of its privileges. Those who wish to attend the assembly must send their applications in advance. Enrollment blanks may be procured from division superintendents. These blanks should be carefully filled out and given to the supervising teacher, who will forward them to the division superintendent. The supervising teacher may or may not change some of the courses selected by the teacher. When the division superintendent receives the applications, he may make other changes, or he may approve the applications without any alterations. The division superintendent then sends the applications to the Superintendent of the Normal School. The latter makes out the teacher's assignment card exactly in accordance with the application as it appears when received from the division superintendent. The only exception to this rule is in the case of cooking, the facilities in this department being limited. Those who send their applications late need not apply for cooking, as there is never any room after the first 700 applications are received. The result is that teachers who apply late for cooking must be assigned to some other subject. This is the only instance in which teachers are not given the work requested in their applications as finally approved by the division superintendent.

Upon arriving at the assembly, teachers are often disappointed to find that their assignment cards call for courses different from those which they put into their applications. When changes are made by supervising teachers and division superintendents, it would be well to advise teachers of the changes in order that they may know beforehand what work is to be expected of them, and accordingly bring the necessary books to the assembly. A lack of understanding on this point has been the greatest cause for dissatisfaction among the teachers attending the vacation assembly.

When a teacher is enrolled for certain work his course is never changed except upon the specific request of the division superintendent or his representative. As the session is short, changes in a teacher's course of instruction are never advisable. It is hoped that all concerned will consider well the selection of courses, and, when these are finally determined, consent to no changes.

Applications should be received at the Normal School early in April. At any rate, they should reach Manila before the opening of the assembly. Last year about 170 applications were received on or after the opening day. In many cases, teachers arrived ahead of their applications. As no one is admitted to the assembly except upon the recommendation of a division superintendent, those who are without credentials must remain idle and wait for authority for their admission.

It will greatly facilitate matters if the division superintendent will send in applications as rapidly as action can be taken upon those in his office, instead of allowing the applications to accumulate in the division office and sending in large lots immediately before the opening of the assembly. Letters of transmittal are not necessary unless the division superintendent desires the acknowledgment of receipt of the applications.

LIVING ACCOMMODATIONS.

The girls' dormitory of the Normal School will be open to women teachers at a cost of ₱20 per month. All who expect

Plate X. Lace making and embroidery in the Philippine Normal School.

to apply for accommodations there should bring their own bedding, mosquito nets, etc. Near the school there is a private dormitory for women. This will be open to those who desire to avail themselves of its privileges. Two private dormitories for young men, accommodating a total of about 200 students, will be in operation during the assembly. As the electric cars pass directly in front of the building, the assembly may be reached from any part of the city quickly and cheaply.

The total dormitory accommodations for young men and young women will probably not exceed 400 teachers. This means that many hundreds must find accommodations in private homes. Those who have relatives and friends in Manila should make arrangements in advance by letter. In engaging board, it should be remembered that the vacation assembly will not be held in the usual place, but in the new Normal School on Taft Avenue near Bagumbayan. The assembly will be within easy walking distance of the Walled City.

FEES.

Every teacher who enters the vacation assembly will be required to pay a fee of ₱1. This amount is payable at the time of receipt of the matriculation card. Teachers are expected to provide all necessary books. The better plan is to bring these from home. However, such books as are available may be bought at the assembly.

FINANCIAL DIFFICULTIES.

A great many teachers who attended the assembly suffer from financial embarrassment. In the first place, living expenses in Manila are much higher than in the provinces and teachers underestimate the amount that will be necessary for their comfort. Then there are attractions in Manila which

Plate XI. One of the regular class-rooms in the Philippine Normal School.

are well calculated to extract coin from the most frugal—the cinematograph, the electric cars, ice-cream parlors, bookstores, and various other enterprises which are altogether worthy, but at the same time soon deplete one's stock of cash. Teachers who have had their entire vacation salaries paid in advance often find themselves penniless before the close of the assembly.

The remedy for this situation is not so apparent. However, it has been observed that the attendance at the assembly is much better and teachers are more able to meet their obligations if part of their vacation salaries is paid before their leaving home, and the remainder at the close of the assembly. It is believed that the advantages derived from the general adoption of this plan would much more than offset the inconvenience incident thereto.

THE OUTLOOK.

The prospects for a large and successful assembly have never before been so bright. It will be noted that almost twice as many courses are being offered as in any previous year. It is the intention to bring to the assembly a large and strong faculty of American and Filipino instructors. With the limited facilities available last year, approximately 1,500 teachers attended the assembly. At this early day, there is no way of estimating the probable attendance at the next assembly, but it may be said with certainty that 2,000 teachers can be accommodated at the next assembly with a great deal more comfort to themselves and the faculty than were the 1,500 provided for last year.

Owing to the small capacity of the buildings and the limited equipment in previous assemblies, it has been necessary to extend the daily sessions over many hours. This has proved very fatiguing alike to faculty and students, especially as the assembly is held in the hottest season of the year. The new Normal School building is comfortable even in the hot season, and as the extended facilities will admit of a much more satisfactory program than heretofore, it is confidently believed that teachers who attend the next assembly will spend an enjoyable and profitable vacation.

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Men do not attain perfection by striving to do something out of the common. Perfection is acquired by doing common things uncommonly well.

EDITORIAL AND OFFICIAL

THE demand for industrial training of a type to fit the boy or girl either for entering a vocation, or for advancement in the vocation already entered upon, has become so insistent that all progressive educational systems have been making provisions to satisfy it. Attempts have been made to meet the demand in many different ways. The regular trade school, in which the pupil is given practical training which will enable him to enter upon his vocation as a journeyman, is one of the most efficient types of schools, but it is also one of the most expensive and moreover is frequently open to the criticism of not developing the ability and characteristics which an employer demands of his employees. The half-time school, in which a student spends half of his time at school and the other half in actual labor in the line of work which he expects to follow under the instruction of the employer himself, is being tried out in many places. In Germany the continuation school has seemed to meet the requirement that people engaged in trades be trained to the highest point of efficiency in the most satisfactory manner. In these schools the pupils spend most of their time at actual work at their trades and a limited amount of time in school work such as language, mathematics, and drawing—all pertaining directly to the vocation in which the pupil is engaged.

Extension of Trade School Work.

In this country, no attempt has as yet been made to introduce the half-school and half-shop practice. It is felt, however, that the time is now ripe for the trying out of such a system in connection with the Philippine School of Arts and Trades. Arrangements will be made by which manufacturers who desire to develop apprentices to the highest stage of efficiency will be given an opportunity to send them to the Philippine School of Arts and Trades for one half the day and keep them at work under competent instructors during the other half of the day in their own shops. In all cases where such arrangements are made the manufacturer will be required to outline clearly the nature of the course which he will give to his apprentices; to state definitely the opportunities which will be open to them upon the completion of their course; to report monthly upon their attendance and progress; and to allow the Director of Education or his duly authorized representative access at all hours to the shops in which the apprentices are at work. He must also clearly stipulate whether or not the apprentices will receive any pay whatsoever for their services before the completion of the course. The total cost of all materials and supplies used by the apprentice and all expenses connected with the instruction in the practical workings of the trade, shall be borne by the manufacturer. The school authorities will see that the apprentices are given instruction in English, mathematics, and drawing, correlating each one of these subjects so far as possible with the trade at which the apprentice is working. No apprentice will be accepted who has not completed the primary course of instruction, who is not sixteen years of age, who does not possess sufficient physical strength to warrant his taking up the trade desired, or who cannot present sufficient evidence of good character to satisfy both the school authorities and the employer. In most cases where such an arrangement is consummated, the apprentice will spend a full half day in the shop. This time will probably vary, in accordance with the customs of the particular branch of work, from three to five hours. He will also spend four hours at the school upon his academic subjects.

The results of carrying out such plans cannot be definitely foretold. Similar plans have been worked out successfully in other places and there seems to be no reason why they will not be successful here. They should develop a class of intelligent artisans already accustomed to shop life and in close touch with their employers. A sympathetic relationship between the employer and his apprentices will be an essential for attaining the desired ends.

Several employers have already expressed their interest in this plan and they desire to give it a fair trial, believing that it will eventually work out not only to the personal advantage of the apprentice but also to the ultimate financial advantage of the employer. The details of this plan cannot be given at the present time, inasmuch as the arrangements for the different trades will vary greatly and in each case a number of special details must be provided for in addition to following out the previous general outline. All employers desiring to institute such a system of apprenticeship or desiring to become better acquainted with this movement may do so by correspondence with the Director of Education.—W. W. M.

The complaint is often made by employers of labor that the pupils turned out by the schools are "failures." This is partly the fault of the employer, who may expect too much, but more often the fault of certain things that are lacking in school training.

Relations between the Public and the School Shop.

When a boy leaves school with a high standing and a diploma, he naturally feels pride in the fact that he has done better than some of his companions. He has been accustomed to kindly treatment, patience with his mistakes, and praise when he has excelled in his work. He goes to work for a business man who expects continuous perfect work, and who considers anything less than one hundred percent, a failure. The things which earned him praise while in school are taken as a matter of course by his employer, who expects to get full value for his money. In many cases the change is more than the boy can bear and he either quits his job or is discharged.

Much can be done by the schools to remedy this condition, perhaps more by the school shops than by any other department. One of the weak features of any school system is its short hours. The pupils in the school shops are *not* learning to do a full day's work, from the standpoint of the business man. The pupil who does perhaps three hours easy work a day in the school shop for five days of the week, is to become the workman who must do eight or nine hours' work a day for six days in the week just as soon as he leaves school. Since it is apparently impossible to change the business man's requirements, we should, at least, in some way prepare the pupil for future conditions by demanding of him all that he can do while in the shop. Promptness must be considered above all things. Tardiness and absence should not be excused except in case of actual sickness. An employer does not pay for work that is not done, and there should be a penalty in the school for needless loss of time or for inexcusable mistakes. The penalty should be severe enough so that a pupil will consider well before he stays out of school and will continually be on his guard against mistakes.

We must also insist on every pupil's working his full time in the shop. There must be a fixed time for starting and stopping work. The work should be planned so that a boy may always have something new to commence when he finishes one job, even though he finishes within five minutes of the end of his period.

Laziness and indifference are two things that a teacher has to contend with. There are always, in every school, pupils who do not expect to work for a living after finishing their education.

These pupils are the chief cause of failure in shop discipline, for they set an example that the rest of the class is bound to follow to some extent. The course, however, requires that they take shop work, and the teacher must receive them into his class. Fortunately for the public schools, most of these boys are discouraged at the prospect of continuous hard work and find a place where the requirements are not so strenuous. The shop teacher must enforce his rules upon all of his pupils alike. If they do not like it, let them quit—that is what they will have to do in the business world.

To quote an old saying: "Attention, application, accuracy, method, punctuality, and dispatch are the principal qualities required for the efficient conduct of business of any sort." With this aphorism as a basis, we may state some of the requirements of an ordinary employee in any of the common lines of trade or business.

(1) Getting to work on time and working full time every work day in the week.

(2) Doing his work thoroughly and well.

(3) Giving strict attention to business.

(4) Doing exactly whatever he is told to do.

(5) Dressing to suit his work.

(6) Never being tardy or absent without a very good reason.

(7) Knowing how to do the work he has been hired to do.

(8) Being respectful and obedient at all times, even though he thinks that his employer is unjust.

(9) Working overtime without complaint, if ordered to do so.

These things should be required in the school shop to the fullest possible extent. An employer may excuse, but he will not *pay* for labor unperformed, and he will not excuse the same offense many times.

While we cannot take the same attitude toward our pupils that an employer takes toward his men, we must go as far as possible by making rules as above and enforcing them. It may seem unjust to require the same work of a boy who is physically unfitted for shop work that we require of a boy who is strong and healthy, yet it is equally unjust to give him the same rating as his companions who are able to do hard work.

Discipline is the most important factor, and the only one that can be kept up to standard in a school. We cannot get perfect work, perfect attendance, or full value for our time, but we *can* get perfect obedience, and we *can* send out our pupils trained to obey orders. This should be the aim of every industrial teacher.—F. W. C.

In several recent numbers of THE PHILIPPINE CRAFTSMAN we have indicated, by reference to articles in both educational and lay magazines, the trend of educational thought in the United States as compared with that in the Philippines, pointing out the pertinent fact that, particularly in the matter of vocational training, we seem to have good reason for feeling that the Philippine Bureau of Education is accomplishing something worthy of more than mere passing mention. It is not often that we are made the subject of such gratifying reference as that contained in the Annual Report for 1912 of the Honorable, the Secretary of War. The following quotation is taken verbatim from this report; and considering the dignity of the source of this reference, we feel justified in setting it down here, for the benefit and encouragement of all concerned, as the last word on the education situation in the Philippines.

> "In the last decade opportunities for education have been extended over the entire Philippine Archipelago. Where before the advent of the Americans there were only 700 public schools, there are now nearly 5,000 with an enrollment of nearly 700,000 Filipino pupils. Where there was then no attempt at vocational training, there is now an enrollment of over 400,000 pupils in industrial courses, *while better opportunities are afforded in this respect by the public schools of the Philippine Islands than by the public schools of any State in the Union.* (NOTE: The foregoing is not italicized in the report.—Editor.) In the spread of English, we are actually giving to the Filipino peoples for the first time a common language. Besides Spanish, there were 24 distinct languages or dialects spoken in the Islands, while the variations in the dialects were almost innumerable. Today more Filipinos speak and write some English than speak and write at all in any other language. Whatever the future state of the Philippines politically, the establishment of a common language must do more for the advancement of their people toward nationality than any other one thing, and the establishment of English as this common tongue must do more for them than any other language that it would be possible to establish, since this is the most common international language of social and commercial intercourse in the Orient among people outside of the Philippine Archipelago."

—T. D. D.

Manual training in some form is here to stay. The teacher needs it in teaching not one subject, but most subjects; the public demands it because it offers the most obvious means of beginning the training for vocational life.—*Selected.*

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Labor is discovered to be the grand conqueror, enriching and building up nations more surely than the proudest battles.—WM. ELLERY CHANNING.

The public school must teach that which all should know. This is the ideal of the elementary school. Joined with the humanities and the sciences, a study of the industries rounds out the education of the citizen and equips him to begin his vocational training—*Selected.*

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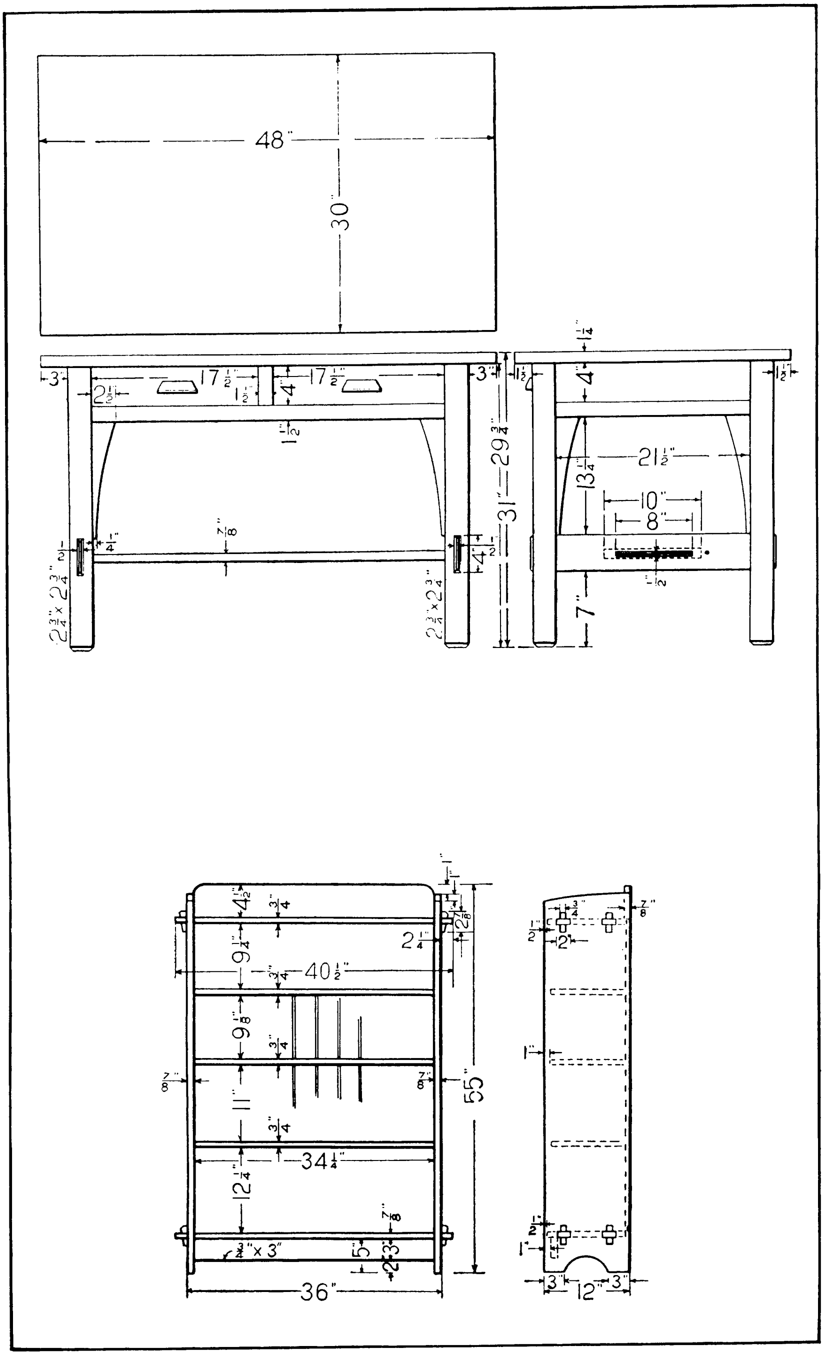
The latest number of the Bulletin of the Imperial Institute, published by the British Government, contains an excellent article on Recent Agricultural Development in Uganda by P. H. Lamb, chief agricultural officer in Uganda. From the part of the article discussing the development of the cotton industry in Uganda the following excerpt is made:

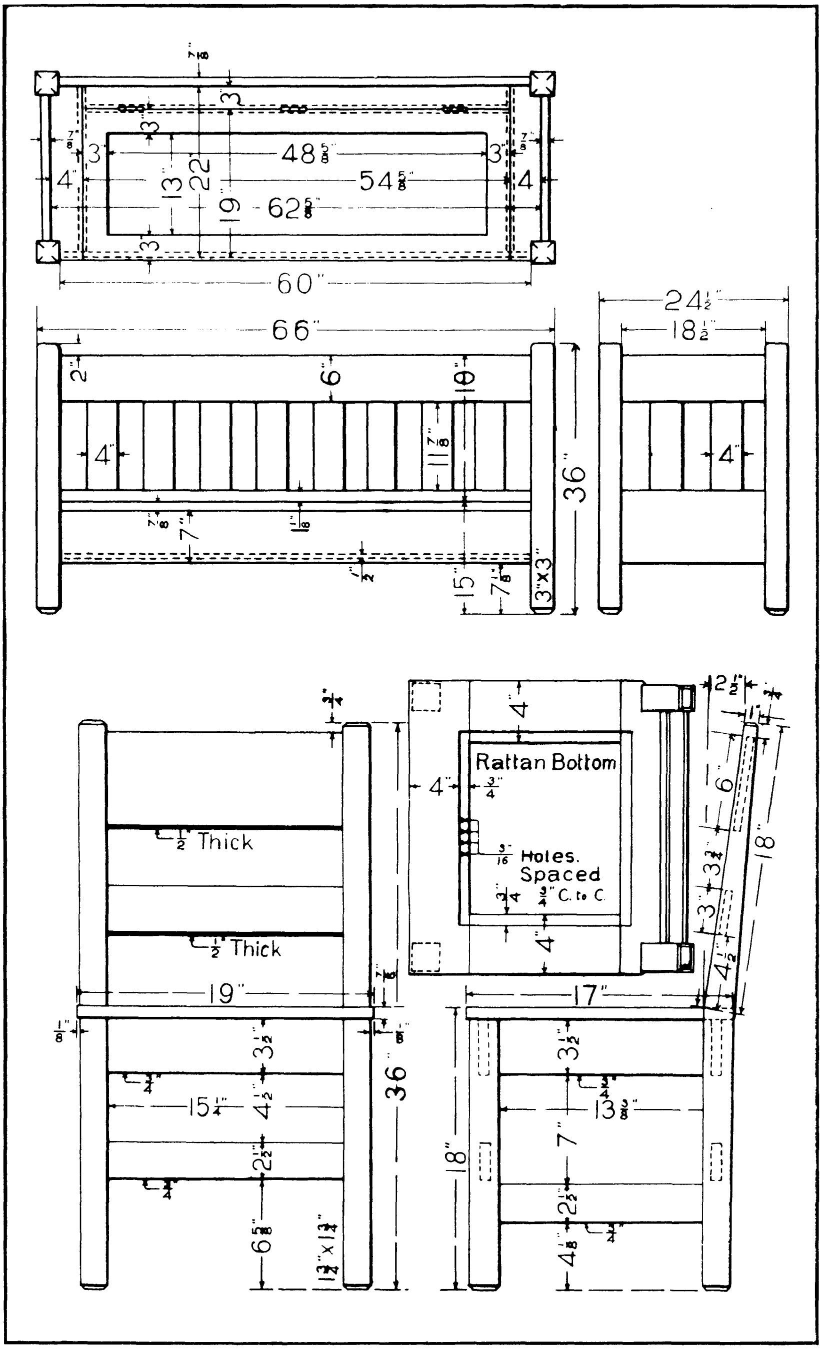
> The Department, while these experiments were in progress, lost no time in correcting obvious cultural errors, and instructing the natives in the elementary ideas underlying successful cotton cultivation.
>
> With this end in view a system of native cotton instructors was inaugurated, and has proved an unqualified success. The European staff, whose time is principally spent in touring the Protectorate with a view to instilling sound agricultural principles into the native mind, soon realized that an enormous amount of their energy was being wasted in laborious detail which could be equally well accomplished by a staff of carefully trained natives, thus enabling the European to cover more ground on inspection duty, and that far more efficiently. These paid instructors rapidly acquire the essential principles of cotton cultivation, and are then sent throughout their respective districts to give practical demonstrations in every village.
>
> Such a system reaches the individual peasant, no matter how illiterate he may be, and whereas when an officer attempts to undertake this work himself, any good impression that may be created is almost certain to be quite obliterated before his next visit, the local instructor, on the other hand, is able to pay frequent visits, and has time to see that his instructions are carried out. It should be added that such men are almost invariably nominated by the local chief, and work with his hearty co-operation. The very marked improvement in all districts where native cotton-instructors have been at work speaks for itself, and has always been a source of the greatest satisfaction to all who have been in a position to judge of it.

In the same article in the discussion of the coffee industry the following statement is made:

> But of all planter's crops in Uganda none has proved itself to be more desirable than coffee. The variety under general cultivation is coffee arabica, and the results so far obtained are highly satisfactory, a yield of 1,000 pounds of dry beans per acre being commonly obtained from trees after the third year. Numerous plantations, both European and native, have recently sprung into existence, power factories are being set up, and great activity is in evidence on every hand. There can be little doubt that the next five years will see an export trade in this commodity built up which will rival that of cotton in importance.



Library table and bookcase. (P. S. A. T.)



Settee and chair. (P. S. A. T.)

INDUSTRIAL NOTES.

FARMING IN AGUSAN VALLEY.

Located about seventy-five miles up the Agusan river, is the town of Talacogon. The Talacogon District is about one hundred and fifteen miles long and includes a few schools on branch rivers.

As this country is cut up very much by lakes and rivers, all transportation and commerce are by water, either with baroto or launch. The natives, Manobos, are non-Christians and are not natural farmers, depending upon wild fruits and grains and fish for subsistence. They live in settlements, and the principal crop planted is camotes. For this reason, farming instruction in the schools is a very tedious, but at the same time a very important, task.

Manobo house.

In previous years some school gardening was done, and a few of the schools had small plots averaging about six hundred square meters. However, this year brought with it an increasing interest in farming and agriculture, and with the inauguration of the corn campaign by the Bureau of Education came a desire on the part of pupils to compete with other divisions in the growing of corn. The campaign cry was "Corn! More corn, and better corn." Other food crops were not neglected, but most stress was laid on the growing of corn as a supplementary food staple.

In the Talacogon district 6 hectares of land have already been cleared and planted. Much of the clearing was in the virgin forest and was done by pupils under fifteen years of age. The work of clearing and cleaning the ground is slow, as not an animal has been used to assist in moving the large timbers. Bolos, axes, and crosscut saws are used in cutting down the trees. The ground is prepared for planting with bolo, spade, and hoe, and cultivated with the same tools. The main drawback in establishing a school farm is the large timber that is encountered. Oftentimes trees 3 and 4 feet in diameter have to be felled.

The school farm has been handled in a systematic way, one-half of each day being devoted to farm work when the weather is suitable. A certain area of land was "staked" at each school to be cleared and planted during the month. All food products have been returned to the pupils except the selected seed. What has already been accomplished has proved that farming can be made a success in this particular district, and that the soil will produce a yield far beyond the average, and of superior quality. This district has produced a deep-grained dent corn that is unequaled in grain, and careful seed selection should bring forth a well filled ear. The Manobos have learned that they can get more food and better food by cultivating their crops.

Below is a report on products for the first semester of 1912:

Corn (on cob)	gantas	1,628
Camotes	do	456
Gabi	do	50
Mongos	do	31
Beans	do	16¾
Tomatoes	do	10
Peanuts	do	5
Eggplant	fruits	85
Cowpeas	gantas	17
Pepper	do	1½
Papaya	fruits	16
Tobacco	leaves	306

According to the market prices of Butuan, the capital of the province, this produce would have a value of ₱241.39. This is not a large production, but it is a start, and it gives evidence of the enthusiasm taken in the work.

On each farm are being planted papayas and bananas; it is intended that by April 1st, two papaya and three banana trees per pupil will have been planted in the district.—O. C. K.

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THE SCHOOL OF HOUSEHOLD INDUSTRIES.

The second session of the School of Household Industries opened on January 6, 1913, and will continue during six months. During this session 100 young women selected from nearly all of the provinces in the Philippines will receive instruction in lace-making and embroidery work.

It will be noted that the number of women attending the school has been reduced from 145 to 120. This reduction was made in view of the fact that the months from January to June are the hottest and driest of the year, and it was thought best to provide larger dormitory facilities for each individual. This change will also permit more attention to be given the individual student during the regular term of six months.

While the functions of the School of Household Industries are mainly to teach all combinations of needlework stitches and to train women in the handling of native and foreign materials in such a manner as will produce the most pleasing effects, yet all of the women just graduated were given training also in the selection and pricing of materials entering into the making of different articles. Each student became thoroughly acquainted with a system of accounting and a method whereby accurate records could be kept of all orders, patterns, qualities of cloth, and shipping directions. The training throughout the school session aimed to prepare the graduate to meet the conditions under which her working center will be conducted.

In view of the fact that this school is in no sense a factory and that its whole efforts have been spent rather in teaching a handiwork than in producing finished articles, it is extremely gratifying to note that the work done in the school has met with the approval of the buying public. During the first six months of the school's existence the total sales of handkerchiefs amounted to ₱1,902.20. The sale of other embroidery work amounted to ₱1,020.20 and there is on hand embroidery work valued at ₱1,500, which can be sold at any moment. Had it not been for the delays incident to opening a new school of this character, a larger amount of work might have been produced.

The young women who attended the first session of the school have returned to their respective towns and have there organized working-centers for the production of high-grade lace and embroidery. Each working-center is now composed of about twelve of the best workers found in the community from which the graduate came, but as the demand for needlework increases, new workers will be trained, and it is expected that within a few months each of these localities will have a group of workers sufficiently skilled to do high-grade lace or embroidery work.

With a large prospective production in view, it is realized that some systematized plan looking to the disposal of the product of these centers must be provided, and for this purpose the Sales Agency has been authorized to extend its facilities throughout the Philippine Islands. Where the Sales Agent is ready to put the plan in operation in each province, he will correspond with the respective provincial boards upon this subject, acquainting them with the needs.

Since many of the graduates will be without capital and will be unable to await the presenting of the product of their industry to Manila and its sale there, or in the United States, before receiving payment, each province has been requested to make an appropriation to serve as a working capital for the purchase of standardized industrial handicraft articles. With this appropriation provincial treasurers will purchase needlework products ordered by the Sales Agent and manufactured by the graduates of the School of Household Industries, or by others to whom the Sales Agency may wish to extend the same privileges.

Further arrangements have been made whereby the Sales Agency will furnish the graduates through the provincial treasurers with proper material at reasonable prices, advise them as to the kind and style of articles for which there is a market, and find that market when the articles manufactured are in accordance with the standards fixed.

In order that a basis may be established upon which articles of one class and standard can be purchased by the province, it will be necessary that the Sales Agency send to the provincial treasurers samples of all articles to be manufactured with their corresponding prices. With this basis once established, the province will purchase all articles conforming to the class and standard of the samples at the price set, and will forward them to the Sales Agency, where they will be sold at the highest market-price obtainable. All of the net proceeds of the sales made by the Sales Agency will be returned to the province concerned, to reimburse it for the money expended in the purchase of the manufactured articles.

It is expected that after a time those engaged in the manufacture of household articles will be able to market their products through commercial houses without the assistance of the Government, but that is not possible now in most provinces. However, with the present large demand for high-grade lace and embroidery work and the well laid plans whereby the Sales Agency is to supply materials and patterns, it should be a matter of but a short time before the Philippines will take a prominent place as a producer of needlework.

In order that the working-centers may be established over a large territory and competition may be avoided, the young women selected to attend the second term were chosen from towns or communities other than those represented by the graduates who attended the first term. Those living in towns where household industries are already established, and where the facilities for communication with Manila are best, were given preference. At the end of six months these women will have completed their training, and the work will be further extended when a new group of women selected from other communities is enrolled. Each of these graduates will likewise organize a working-center in her home-town and instruct her workers so that they can do work of the standard required by the markets of the world. The results within a few years should be and undoubtedly will be of great economic importance to the people of the Philippine Islands.—R. B. R.

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FIRST GRADUATION CLASS, SCHOOL OF HOUSEHOLD INDUSTRIES.

The graduating exercises of the first class of the School of Household Industries took place in the Philippine Normal School auditorium, December 14, 1912, when a class of over one hundred members concluded the courses in needlework, lace-making, and embroidery. The Bureau of Education was represented by the Second Assistant Director, Mr. Magee; the Philippine Assembly sent as its delegate Mr. Corpus; and the executive part of the Government was represented by Acting Governor-General Gilbert.

Mr. Magee spoke on the origin of the School of Household Industries, its organization, and its purpose. Mr. Corpus congratulated the graduates on their successful school year and on the splendid opportunities open to them in their future work. Mr. Gilbert emphasized the commercial need of a school of this type to introduce into all parts of the Philippine Islands an industry in which the graduates of the school and their coworkers could be employed throughout the year, and which would thus aid in bringing about the individual and industrial prosperity which must underlie commercial prosperity.

A few well-chosen and representative articles were placed on exhibit in the Normal School. These included doilies, table-sets, handkerchiefs, shirt-waists, and dresses embroidered by the pupils of the graduating class. A popular design appeared to be the gumamela, the leaves and flowers being in every case beautifully finished, and neat and accurate in every detail. A few finely executed specimens of bobbin-lace attracted considerable attention. The exhibit would have been much larger had it not been for the fact that most of the product of the school had been sold to secure capital with which to establish working-centers on the students' return to their home towns.

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Since 1909 the St. Gall, Switzerland, Industrial Commercial Museum has extended the work of giving women practical instruction in the various processes of embroidery manufacturing by adding nine new schools situated in as many different towns in Switzerland. All of these schools aim to train their pupils in the technique of embroidery manufacture. They likewise teach young girls to deftly manipulate the ordinary sewing machine, so that defects or breaks in embroideries may be so skillfully repaired as to be hardly noticeable.

In these schools training is given also in designing; in that country the making of designs for embroidery work is a well-paid profession.—R. B. R.

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CORN-RAISING AT THE BUTUAN INDUSTRIAL SCHOOL FARM.

During the period June 15 to October 15, 1912, 4 months, there were raised on one-third hectare of land at the Butuan Industrial School 38 cavanes of ear corn with a local market value of ₱2 per cavan, and a catch crop of 3½ cavanes of mongos with a local market value of ₱8.40 per cavan, making the total value of the crops raised on one-third hectare of land in four months, ₱105.50.

During the same period the total value of all crops raised on the farm of this school amounted to ₱308.75, notwithstanding two attacks by swarms of locusts which reduced the yield by at least one-third.

The crops raised on the farm are consumed in the school mess by the students, and have reduced the cost of subsistence from 26 centavos per ration (three meals daily) per student in February, 1909, to 8 centavos per ration per student in November, 1912.

This school is now developing a special strain of corn, a hybrid from Mexico White Flint and Butuan White Flint, which has already been produced on trial ears 22 centimeters long with a yield of 2½ cavanes to the hundred square meters. Seed selected from this hybrid and planted in October, 1912, was on December 16 in the milk stage, and though considerably injured by heavy rains and storms, showed signs of producing a larger yield than the parent stocks.

An experiment is also being made in crossing the hybrid Mexican-Butuan White Flint with the Prosperidad-Mexican White Dent, as the latter has a deeper and more perfect kernel. The Mexican-Butuan White Flint also has been crossed with the Iloilo White Flint, which has a very large kernel. Such experiments will take years to perfect, but considering the comparatively small quantity of corn now being raised in the Philippines, they are essential to successful corn-growing.

The soil of the Agusan Valley is well adapted to corn-growing, and when the immense forested area is cleared it may be the great corn producing region of the Philippines.—F. P. L.

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PROTECTING PLANTED SWEET CORN AGAINST ANTS.

No doubt every one who has endeavored to grow sweet corn in the Philippines has been confronted with the difficulty of securing a stand before the ants destroy the planted seed. This may be avoided by soaking the corn in water for about five hours, and then placing it in a petroleum bath for from five to seven minutes just prior to planting. The petroleum will not injure the germ, and germination will take place before the ants will touch the seed.—J. A. C.

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SECOND SEED BED FOR GARDEN PLANTS.

To secure a rapid growth of transplanted plants is not always an easy matter. One is forced to transplant seedlings from the germinating bed before a strong root system has been developed, and consequently there is usually a somewhat lengthy struggle between life and death before the former comes out victorious. The plan of making use of a second seed-bed has been worked out at the Indang School Farm with great success. It is quite remarkable what a difference is secured in the growth of eggplant, tomatoes, peppers, and cabbage. This second bed should be made in a level place, filled with rich soil and kept semi-shaded at all times. The seedlings may be transplanted from the first seed-bed when they are about two weeks old, and placed from three to four inches apart in order to allow sufficient room for the development of a strong root system. The plants should be left in the second bed for about two weeks, at the end of which time they may be transplanted to their permanent growing-places. A clump of soil must always be left attached to the roots of the plant. If the transplanting is properly done the seedlings will not wilt, and their subsequent growth will be rapid and healthy.—J. A. C.

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The General Office is in receipt of frequent school news bulletins prepared by the United States Bureau of Education at Washington, D. C. These bulletins treat in a general way of school affairs in all parts of the world. Many of the notes appearing in them have a direct bearing upon industrial instruction, and extracts from them appear frequently in the pages of THE PHILIPPINE CRAFTSMAN. It is suggested that division superintendents and others interested in school affairs generally communicate with the United States Bureau of Education, requesting to be placed on the mailing list for these school news bulletins.

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According to a garden report issued by the division superintendent of schools for Albay, there are in the province about 54,000 square meters of land planted with vegetables, and over 30,000 square meters of land devoted to corn. This makes a total of about 8½ hectares of land under cultivation by the pupils of the schools in the division.

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In Palawan industrial work is being successfully carried on, and several salable articles have been turned out. A coiled nito fruit-basket and abaca and coco-rib baskets have proved very popular. At the Coron Central School a very neat design of cigarette case is being made. The material used is "caña bojo," and the design is in black and white. This species of bamboo can be dyed black by a very simple process. The internode of a young bamboo, before being split into strips, is scraped smooth, until none of the epidermis is left. Then the surface is rubbed with a finely scraped piece of "kalamping" bark. (Any fresh sticky bark will serve.) The bamboo is then held over a burning "brea" candle stick or a smoky oil lamp till its surface is thickly covered with soot. This process is repeated three or four times until the surface of the bamboo becomes black and glossy. After the last application of the bark, the bamboo should not be smoked any more, but should be placed in the sunshine till the sap becomes perfectly dry.

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TEACHERS VACATION ASSEMBLY, PHILIPPINE SCHOOL OF ARTS AND TRADES.

The usual vacation assembly for Filipino teachers will be held at the Philippine School of Arts and Trades, Manila, beginning on the morning of April 14, 1913, and continuing six weeks. All of the courses offered last year appear again on this year's program.

In addition to courses previously offered, there will be both elementary and advanced forge work for teachers in agriculture or shop work. Opportunities will be given for instruction in the forging of articles for use in the locality from which the teacher comes. Applicants desiring to take such special work should bring models of the articles in which they desire to specialize.

Another new course will be that of ceramics. This will consist of five hours per day spent in the pottery department and one hour in the drawing department. This course is planned to aid teachers who come from districts where pottery is already an established industry, or where it could be made so. It will, of course, be impossible for a teacher to complete the work in one term of the Vacation Assembly, but the work for 1914 will be planned so as to correlate closely with that given this year. In the six weeks' course of five hours per day a teacher should be able to acquire a knowledge of how to prepare clay, how to model a few simple designs, how to use a potter's wheel, and how to build and use a small kiln.

A short course will also be given in wheelwrighting. This work will be open only to such teachers as have satisfactorily completed a trade course in woodworking. It is planned to teach students who already possess a fair knowledge of cabinet work or carpentry how to make simple repairs upon vehicles in common use. Special attention will be paid to the making of spokes, hubs, and felloes. Teachers taking this course will spend five hours daily in the shop and one in the drawing room.

For fuller information, the announcement of the Eighth Vacation Assembly for Filipino Teachers should be consulted. Copies of this announcement may be obtained from all division superintendents.

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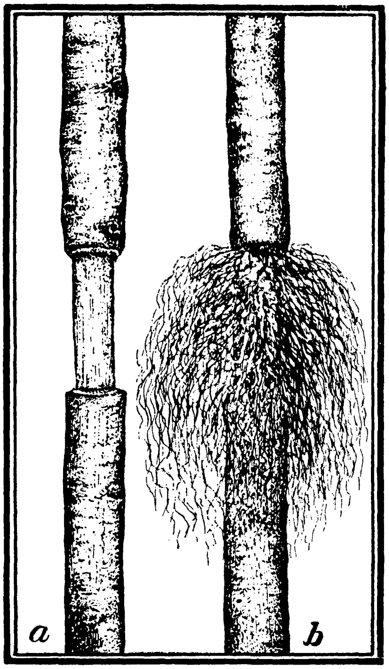
PROPAGATION OF CHICOS AND LANZONES.

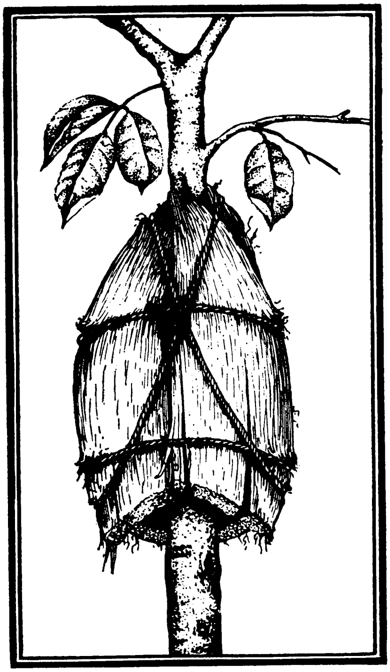
In the propagation of both chicos and lanzones there are two very distinct methods in vogue: that which is known to the American horticulturist as "ringing," but which commonly goes by the name of "marcottage" in the Philippines, and that of planting the seed.

The latter method is seldom practiced because of the length of time necessary for a seedling to come into bearing. It is a common expression among Filipinos that the father plants the lanzones tree for his son. The writer calls to mind several trees which have not yet fruited, although the trees are more than twenty-five years old. Chicos require less time than lanzones to fruit but when propagated from the seed several years of slow growth must elapse before the tree can be expected to bear fruit.



(*a*) A newly prepared marcottage showing the appearance after removing the ring of bark. (*b*) The mass of roots which develop before the limb is removed for planting.

"Marcottage" consists in peeling a ring of bark from a small branch,



A marcottage protected by coconut husks. This is the method most commonly used in the Philippines.

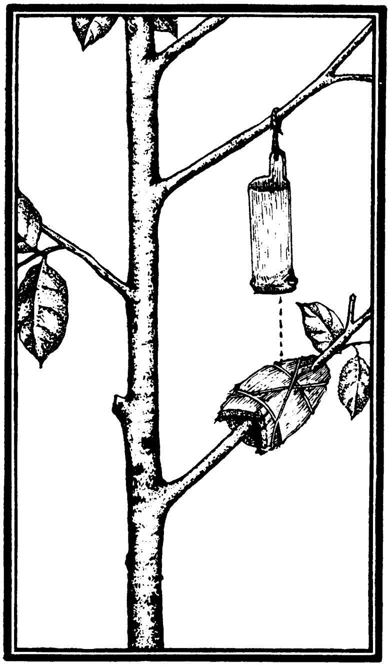
tying the peeled place in moist soil, and thus inducing the branch to send out roots.

Notwithstanding the crude methods commonly employed in the Philippines, very good results are generally obtained. Several kinds of wrapping have been tried, but the greatest success has been obtained by using ordinary old coconut husks. The spongy tissue of the husk is an excellent retainer of moisture, and insures such an uniform distribution that the soil in the husk will remain moist longer than when wrapped in any other material, thus assuring a strong root system.

To those who are attempting to place a marcottage for the first time, the following suggestions may be of definite use:

Select a small branch one to two centimeters in diameter; remove a ring of bark about four centimeters wide; scrape the stem well where the bark has been removed in order to destroy the cambium layer and thus prevent the wound from healing; place immediately over the wound some fine moist soil; have prepared some thick coconut husks, fill these with earth and bind them around the cut part of the branch and keep the soil in the husk moist. The husk should remain on the branch until the young roots protrude through the husk. When well rooted, the branch should be removed by sawing the limb just below the bound part, and transplanted in rich and mellow soil. As soon as the young tree has developed a strong root system it should be set out in its permanent growing place.

The best time for placing marcottage is during the rainy season,



Method employed to keep the marcottage moist during the months when the rains are less frequent.

as the frequent rains keep the soil moist. If the marcottage is placed during the drier months, it is an excellent plan to arrange for a vessel filled with water, so hung that there will be a slight but steady drip of water on the bound part of the limb. Persistent daily attention is necessary in order to keep the marcottage moist during the drier months, and unless this attention can be given, it is best not to have recourse to this method of propagation.

Chicos and lanzones require several years to come into bearing, but no doubt the time may be materially reduced by proper care and cultivation. The excellence of these two choice tropical fruits should encourage their extended production and improvement.—J. A. C.

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To meet the ever-increasing demand for definite information as to the best methods of treating and coloring different industrial materials, inquiry concerning these matters was addressed to the Bureau of Prisons and the Bureau of Science. Since the information received may be of interest and value to the many schools where work with these materials is being carried on, suggestions obtained in this connection are given below:

"Black colors for rattan may be produced by soaking the material for a period of time in mangrove-swamp mud. While no definite information can be given as to the cause in the change of color it is presumably due to the presence of tannin in the mud, and it is thought that the same effect may be accomplished by the use of cutch solution." This solution is prepared by extracting the tannin from mangrove bark with water and evaporating the liquor to a suitable percentage of moisture. It is also stated that bejuco may be dyed black by the use of "campeche." The material should first be boiled before it is put into the dye and a handful of copperas added to every 5 gallons of fluid. By the above method dyeing requires from two to four days. If the bejuco is old and yellow, or dirty, it sometimes takes six days. The material should be washed in clear water and hung up to dry. Heart bejuco may be dyed any color. Campeche and copperas make a very satisfactory black color. To secure green, blue, red, or yellow, the following method may be employed: To every 5 gallons of the campeche solution add the following: one-half kilo coarse salt, 1 pint vinegar, before putting in the bejuco; then wash in clear water and hang up to dry. The material should be dried for at least twenty-four hours. To dye bamboo black, use campeche and copperas; brown, employ negro profundo, vinegar, and salt.

Respecting possible methods whereby bamboo can be rendered impervious to the attacks of boring insects, both directors state that there seems to be no satisfactory means to prevent this, though it is reported that the chances for such attacks may be diminished by cutting the bamboo in the dry season and that possibly the impregnation of the material with corrosive sublimate might be used to advantage.—L. R. S.

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Mr. P. N. Sturtevant, head teacher of Catanduanes, submits the following suggestion for furnishing moisture to out-door seed beds. It appears to be an excellent plan and if properly arranged may be the means of greatly reducing the loss of young plants by "dampening off." When seeds are planted in beds made in the ground, this plan might be given a trial.

"The following device has been found to give very satisfactory results. Instead of the usual seed bed into which water is poured or sprinkled, thereby injuring more or less the small plants, a seed bed is made in which are placed joints of bamboo having a diameter of two inches. This bamboo should have partitions in the bottom but none in the top. It is so placed as to be buried at least two inches. At a point well below the surface of the soil small holes the size of an eight-penny nail are punched. The tube is then filled with water and kept full. The small holes in the side permit the water to run out slowly, keeping the soil moist without injuring the plants. One tube for every two square feet of surface will be found sufficient."

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PHILIPPINE INDUSTRIAL EXHIBIT IN THE UNITED STATES.

The Bureau of Education has received copies of an announcement printed by Clark University, regarding an exhibit of industrial work from the Philippine Schools, in connection with the conference on "Recent Developments in China," held at Worcester, Mass. Among other things the announcement states: "The articles are the products of the industrial classes of the Philippine Public Schools and were made in the regular class periods. They include embroidery, Irish crochet, lace, baskets, hats, small articles of wood-work, slippers, hand-bags, matting, mats and other hand-woven articles. The claim has been made that the system of industrial training in the Philippines is superior to that found in any of our own states." This exhibit, temporarily in charge of Mr. G. W. Caulkins, was visited by a large number of people interested in industrial work, and among them were President-emeritus Elliot of Harvard and several professors of Clark University, including President Hall. The exhibit elicited much favorable comment on account of the excellence of the workmanship. The conference on "Recent Development in China," held at Clark University at the same time, was attended by such men as Hon. R. S. Miller, Chief of the Division of Far Eastern Affairs, Department of State, Washington; Joseph Taylor, Professor in West China Union University; Major L. L. Seaman, President of the China Society of America; and numerous other men well acquainted with the various systems of education in force in the Orient.

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PREPARATION OF THE SOIL FOR CULTIVATION.

Vegetables cannot be successfully grown without thorough cultivation. If left alone, the plants will soon be smothered out by the rapid growth of weeds.

The main purposes of cultivation are: 1st, to kill the weed growth, most easily accomplished by stirring the soil just after the weed seeds have germinated; 2nd, to assist nature in making plant food available by breaking up the minute particles of soil and thus liberating the latent plant food; and 3rd, to aerate the soil by frequently stirring it. The mere act of keeping the field clean of weeds is not cultivation.

As soon as the soil is in a workable condition, the ground must be thoroughly plowed and the surface broken up with some cultivating tool. Much of the actual cultivation that plants need can be given at this time.

The surface of the soil should be kept in a loose and powdery condition. Soil in this form both receives and retains moisture. During a dry period much moisture is retained if by frequent cultivation the surface soil is kept pulverized to a depth of one or two inches. The dust mulch forms a sort of blanket and retains the moisture for the rootlets. After a rain, the soil may become caked unless it is stirred so as to prevent the formation of a crust. A crust permits the rapid evaporation of the moisture and if unbroken will also prevent the next rain from being absorbed by the soil.

Land which has been well manured and well prepared before planted, will with thorough cultivation produce a full crop in a favorable season. But even in the most favorable season, well manured and well prepared land will not produce the best crops unless the plants are given the required attention and cultivation while growing.—From notes by H. D. C.

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The following excerpt is taken from Division Circular No. 20, s. 1912, for Bataan. It is believed that corn demonstrations conducted in this manner will be successful.

"*Model municipal corn demonstration—4 booths.*

Table for serving and demonstrating:
Booth No. 1—Cooking, Z (stove).
Booth No. 2—Z (stove).
Booth No. 3—Z (stove).
Booth No. 4—Exhibits X X, corn mills.

BOOTH No. 1. (Dry corn recipes.)
Exhibits—
1. Cooking—Corn bread, corn pone, corn muffins, corn-meal mush, and fried mush.

Demonstrations—
1. Serving the above corn foods.
2. Talks on the above articles and distribution of recipes for same.

BOOTH No. 2. (Dry corn recipes.)
Exhibits—
1. Cooking—Corn cakes, hulled corn or hominy, hoe cake, and johnny cake.

Demonstrations—
1. Serving the above corn foods.
2. Talks on the above items and the distribution of recipes for making the same.

BOOTH No. 3. (Green corn recipes.)
Exhibits—
1. Cooking—Boiled corn, corn soup, corn fritters, corn and tomatoes, and stewed corn.

Demonstrations—
1. Serving the above corn foods.
2. Talks on the above and distribution of recipes.

BOOTH No. 4. (Corn cultivation and machinery.)
Exhibits—
1. As illustrated in Corn Campaign Poster No. 1.
2. As illustrated in Corn Campaign Poster No. 2.
3. As illustrated in Corn Campaign Poster No. 3.
4. Husking corn with husking peg.
5. Grinding corn—with mortar, with grater, and with modern hand corn mills.

Demonstrations—
1. Talks on the above exhibits relative to selecting and testing corn seed; plowing and planting corn land; and cultivating and harvesting corn.
2. Talks on corn machinery, such as plows, corn planters, corn shellers, and corn mills.

It may not be possible to conduct demonstrations as complete as the one outlined above in every town of the division, but some of the points mentioned should be emphasized in every case.

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Mrs. Carry L. Wright, of Capiz, has found a new and quick method of bleaching buri straw. It is placed in water containing a small quantity of cream of tartar and boiled for two hours, after which it is thoroughly rinsed and then dried either in the sun or in the shade. After being dried, the strands are pulled under a hot iron to make them smooth and flat. The entire preparation of the material requires not more than 36 hours. It is stated that tuba vinegar or alum will give the same result.

The Samar Bulletin for November contains some useful industrial information furnished by Herbert F. Patterson, supervising teacher, Oras, Samar.

Mr. Patterson states that a pleasing effect is produced in the decoration of the rims and handles of baskets by using a series of two or three binders instead of one. One of the binders may be made of nito and the other of kalotkagot or bacog, or two may be of nito and one of kalotkagot, or vice versa. Many designs are made possible by binding in strips of nito running lengthwise around the rim, thus combining the double or triple binder with the decorations in common use. This method is not more difficult than any other and it saves time.

It may be found that some teachers have trouble in securing well-balanced designs on the sides of baskets. This difficulty may be easily overcome by weaving halfway up the sides with any good combination of colors and then copying the same design, reversed, for the other half of the distance. The result should be a pretty, symmetrical design.—R. B. R.

PRIZES FOR THE CORN-GROWING CONTESTS IN ZAMBALES PROVINCE.

Mr. Teodoro R. Yangco, a Filipino philanthropist and patron of education, has given the following prizes to be awarded in each of the corn-growing contests for the division of Zambales:

First prize, a Luzon plow and a free passage to the 1913 Philippine Carnival.

Second prize, set of carpentry tools.

Third prize, set of gardening tools.

This is but one of Mr. Yangco's many activities in the interest of education, and particularly in behalf of the Province of Zambales. He has donated liberally for the construction of modern concrete school buildings in the towns of San Antonio and San Narciso of that province.

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CORRECTIONS.

In the September issue of THE PHILIPPINE CRAFTSMAN the following corrections should be noted: On page 189 "Plate XXII" should be changed to read "Plate XXIV," and in the first paragraph on page 192 the letter "a" should be canceled and the figure "2" substituted.

THE TEACHERS' ASSEMBLY HERALD:

Volumes I, II, III and IV. (Supply exhausted.)

Volume V, 1912. (Supply limited.)

Volume VI, 1913. (Now current.)

TEXTBOOKS:

Selected Short Poems by Representative American Authors.

Commercial Geography: the Materials of Commerce for the Philippines.

Macaulay's Samuel Johnson; Emerson's Self-Reliance; Lincoln's Gettysburg Address.

An Introduction to the Study of Colonial History.

Economic Conditions in the Philippines. (In course of preparation.)

TEXTBOOKS—Continued.

Supplementary Problems for Trade Schools and Trade Classes. (In course of preparation.)

THE PHILIPPINE CRAFTSMAN:

Volume I. (Now current.)

CRAFTSMAN REPRINTS:

1. Philippine Mats. (In course of preparation.)

MISCELLANEOUS:

Woodworking, a Manual of Elementary Carpentry for Philippine Public Schools.

A Statement of Organization, Aims, and Conditions of Service in the Bureau of Education.

A Talk on Health Conditions in the Philippines.

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